Title V

Model General Permit Template

SERIES 19 BOILERS, STEAM GENERATORS, AND PROCESS HEATERS

Template # SJV-BSG-19-0

located west of Interstate 5 in Fresno, Kings, or Kern County

not including steam generators in the Kern County oil fields
with an ATC or PTO issued prior to September 12,1979

10 MMBtu/hr $<$ maximum design heat input rating $\leq$ 100 MMBtu/hr

fired on liquid or gaseous fuel, but not simultaneously on both

construction, modification, or reconstruction
commenced after June 9, 1989

This template is designed to streamline the Title V permitting process for boilers, steam generators, and process heaters meeting the above qualifications. Applicants for Title V permits choosing to use this template will only have to complete the enclosed template qualification form and submit it with their Title V application.

San Joaquin Valley Unified Air Pollution Control District

Final
Title V Model General Permit Template
Series 19 Boilers, Steam Generators, and Process Heaters

Template No: SJV-BSG-19-0

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FINAL DECISION DATE: _____

SAN JOAQUIN VALLEY
UNIFIED AIR POLLUTION CONTROL DISTRICT

TITLE V GENERAL PERMIT TEMPLATE SJV-BSG-19-0

ENGINEERING EVALUATION

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Template SJV-BSG-19-0

I. Purpose

The purpose of the proposed template is to streamline the Title V permitting process by identifying the federally applicable requirements for certain boilers, steam generators and process heaters and to establish permit conditions which will ensure compliance with such requirements. These conditions will be incorporated into the Title V permit of any facility choosing to make use of the template.

II. Template Applicability

The template applies to boilers and process heaters which:

Are located west of Interstate 5 in Fresno, Kings, or Kern County, and

Are not steam generators located in a Kern County oil field for which an ATC or PTO was issued prior to September 12, 1979, and

Were constructed, modified, or reconstructed (see Appendix C) after June 9, 1989, and

Have a maximum design heat input rating greater than 10 MMBtu/hr, but less than or equal to 100 MMBtu/hr, and

Are, fired on liquid or gaseous fuel, but not simultaneously on both.

The applicability of this template is determined by completion of the Template Qualification Form (TQF) attached as Appendix H. The completed and signed TQF must be submitted with the Title V application.

III. Applicable Requirements

Units may be subject to "federally enforceable " requirements as well as requirements that are enforceable by the "District-only." Federally enforceable requirements will be enforceable by the EPA, the District, and the public through Title V permit conditions identified as federally enforceable. District-only requirements represent local or state regulations for which the EPA has no direct enforcement authority. The final Title V permits issued by the District will contain both federally enforceable and District-only requirements.

District-only requirements are not addressed in this template except for those used in streamlining of multiple requirements (see discussion in section IV). District-only requirements used in streamlining of multiple requirements will become federally enforceable. Table 1, Applicable Requirements, does not necessarily include all

federally enforceable requirements that apply to boilers, steam generators, and process heaters qualifying to use this template, and it is the source's responsibility to determine any and all applicable requirements to which the source is subject. Generally, requirements not addressed by this template are those that require a source-specific analysis, or are covered by other templates.

Table 1. Applicable Requirements

Rule Category	Rule/Regulation	Citation	Description
A	County Rule	108.1[1]	Source Sampling
A	County Rule	110[2]	Source Sampling
A	County Rule	108[3]	Source Sampling
A	County Rule	404[2]	Sulfur Compounds
A	County Rule	406[4]	Sulfur Compounds
A	County Rule	407[5]	Sulfur Compounds
A	County Rule	407.2[6]	Fuel Burning Equipment- Combustion Contaminants
A	County Rule	408.2[7]	Fuel Burning Equipment- Combustion Contaminants
A	SJVUAPCD Reg. II	2520, 9.4.2, 9.5.2, 13.2	Monitoring Requirements, Recordkeeping Requirements, and Permit Shields
A	SJVUAPCD Reg. IV	4201[8]	Particulate Matter Concentration
A	SJVUAPCD Reg. IV	4301[8]	Fuel Burning Equipment
A	New Source Performance Stds. Subpart Dc	40 CFR 60.40c	Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units
B	SJVUAPCD Reg. II	2201	New Source Review Rule
B	SJVUAPCD Reg. II	2520	Federally Mandated Operating Permits
B	SJVUAPCD Reg. IV	4101	Visible Emissions
C	SJVUAPCD Reg. IV	4351	Boilers, Steam Generators, and Process Heaters - RACT
C	FCAA Title IV	40 CFR 72.6 (b)	Acid Rain Provisions
D	SJVUAPCD Reg. I	1081	Source Sampling

Category "A" rules contain requirements that are directly applicable to the qualifying units; compliance with these applicable requirements will be demonstrated in this engineering evaluation and assured by the template permit conditions. In section IV,

[1] Fresno, Merced, San Joaquin, Tulare, Kern, and Stanislaus
[2] Madera
[3] Kings
[4] Fresno
[5] Kern, Tulare, Kings, Stanislaus, Merced, and San Joaquin
[6] Kern, Kings, San Joaquin, Stanislaus, and Tulare.
[7] Merced.
[8] EPA issued a relative stringency finding, dated August 20,1996, stating District Rules 4201 and 4301 are more stringent than SIP approved County Rules 404 (Fresno, Kern, Kings, Merced, San Joaquin, Stanislaus, and Tulare), 404.1 (Kern), and 402 (Madera); and 405 (Madera) and 408 (Fresno, Kern, Kings, Merced, San Joaquin, Stanislaus, and Tulare), respectively.

Compliance, the federally-enforceable requirements from category "A" rules are listed with a discussion of how compliance with these requirements is achieved.

Category "B" rules contain federally enforceable requirements (aside from those listed as category A) that were not addressed in this template. These may not be all of the federally enforceable requirements for this unit. Requirements from these rules must be addressed by the applicant outside of this template within the Title V application Compliance Plan form (TVFORM-004). Category "B" listing is included in this table as an informational item to assist applicants in this effort.

Category "C" rules contain requirements which have been determined not to be applicable to qualifying units. A permit shield is proposed for the category "C" rules. An explanation of the determination of non-applicability of category "C" rules is included in section V, Permit Shield.

Category "D" rules are District rules which are used to show compliance with federally enforceable requirements, and therefore some requirements from these rules will become federally enforceable through the use of this template.

There are no general conditions in this template are applicable which to all units equipped with scrubbers. Consequently , District Permit to Operate conditions ensuring scrubber control efficiency must be addressed in the Title V application outside of this template.

IV. Compliance

This section contains a discussion of how compliance is assured with each requirement addressed in this template.

District Rule 1081

District Rule 1081 has been submitted to the EPA to replace each of the county rules in the SIP: Rule 108 (Kings), 108.1 (Fresno, Merced, San Joaquin, Tulare, Kern and Stanislaus), and 110 (Madera). Appendix E lists all of the applicable requirements of District Rule 1081 and shows which are included in the rule from each county. This table shows that District Rule 1081 is more stringent than each of these county rules.

Sections 3.0, 4.0, 5.0, 6.0, and 7.0 of District Rule 1081 set forth requirements for sampling facilities, collection of samples, test methods, test procedures, and administrative requirements, respectively. These requirements are covered by template permit condition #3.

District Rule 2520, 9.4.2 and 9.5.2

Section 9.4.2 requires that periodic monitoring be performed if none is associated with a given emission limit to assure compliance. Periodic monitoring consisting of testing/sampling is supported by template permit conditions #4, #6, #7, #9, #10, #12 – 16, and #21.

Section 9.5.2 requires all records be maintained for at least five years. Template permit condition #5 will assure that all records be maintained for at least five years.

District Rules 4201, 3.1 and 4301, 5.1 & 5.2.3, and County Rules 407.2 (Kern, Tulare, Kings, Stanislaus, and San Joaquin) and 408.2 (Merced)

These rules contain limits on emissions of particulate matter (PM). The following analysis shows that the proposed template PM requirements are as stringent as District Rules 4301 and 4201 and more stringent than County Rules 407.2 (Kern, Tulare, Kings, Stanislaus, and San Joaquin) and 408.2 (Merced). Streamlining procedures, as documented in the following steps, are used to substitute the proposed set of requirements for the otherwise applicable requirements.

Step 1. Side-by-side Comparison of Applicable Requirements:

PM					
CITATION:	**District Rule 4201**	**District Rule 4301**	**Merced County Rule 408.2**	**County Rule 407.2 (San Joaquin, Kings, Tulare, Kern, and Stanislaus)**	**Proposed Requirements**
WORK PRACTICE STANDARDS:	•None	•None	•None	•None	•None
EMISSION LIMIT:	•0.1 grain/cf, at dry standard conditions [4201, 3.1]	•0.1 grain/cf, calculated to 12% CO_2 at dry standard conditions [4301, 5.1] •10 lb/hr [4301, 5.2.3]	•0.1 grain/cf, calculated to 12% CO_2 at standard conditions [408.2]	•0.1 grain/cf, calculated to 12% CO_2 at standard conditions [407.2]	•0.1 grain/dscf [4201, 3.1] •0.1 grain/cf, calculated to 12% CO_2 at dry standard conditions [4301, 5.1] •10 lb/hr [4301, 5.2.3]
MONITORING:	•None	•None	•None	•None	•source testing when firing on residual oil (including crude) within 60 days of said firing [2520, 9.4.2]
RECORDKEEPING:	•None	•None	•None	•None	•record daily amount of all fuels combusted, the dates on which firing on any fuel other than certified gaseous or diesel fuel has occurred, as well as the type of non-certified fuel fired [2520, 9.4.2]
REPORTING:	•None	•None	•None	•None	•None
TEST METHODS:	•Particulate matter concentration - EPA Method 5 [4201, 4.1] •Stack gas velocity - EPA Method 2 [4201, 4.2] •Stack gas moisture - EPA Method 4 [4201, 4.3]	•Particulate matter concentration - EPA Method 5 [4301, 5.1] •Stack gas velocity - EPA Method 2 [4301, 5.5] •Stack gas moisture - EPA Method 4 [4301, 5.6]	•None	•None	•Particulate matter concentration - EPA Method 5 (note EPA Methods 2 and 4 are referenced within Method 5) [4301, 5.1 and 4201, 4.1]

Step 2. Select most stringent emission limit or performance standard:

The proposed PM emission limits of:

0.1 grain/dscf of gas calculated to 12% carbon dioxide, and

0.1 grain/dscf of gas, and

10 lb/hr

are at least as stringent as those imposed by District Rules 4201 and 4301 and more stringent than County Rules 407.2 (Kern, Tulare, Kings, Stanislaus, and San Joaquin) and 408.2 (Merced), as demonstrated below:

Compliance with PM Limit - District Rule 4301, 5.1:

This rule requires PM emissions to be limited to the following:

0.1 grain per cubic foot of gas calculated to 12% carbon dioxide at dry standard conditions and

10 lb/hr

The proposed conditions include these requirements and are therefore at least as stringent as District Rule 4301.

Compliance with PM Limit - District Rule 4201:

This rule requires PM emissions to be limited to the following:

0.1 grain per cubic foot of gas at dry standard conditions

The excess air in the exhaust of units qualifying to use this template ranges from 0 to 4%, when calculated at 12% carbon dioxide (see Appendix A). Since maximum particulate emissions occur at 0% excess air, which may occur at operating CO_2 levels and dry standard conditions, the above limit is also included as a condition of this template. The proposed limits are at least as stringent as the requirements of this rule.

Compliance with PM Limit - County Rules 408.2 (Merced) and 407.2 (San Joaquin, Kings, Tulare, Kern, and Stanislaus)

These rules require PM emissions to be limited to the following:

0.1 grain per cubic foot of gas calculated to 12% carbon dioxide at standard conditions

These old county rules do not specify dry conditions, so wet conditions are appropriately assumed. The proposed requirement of 0.1 grains/dscf, calculated to 12% carbon dioxide is more stringent than the requirements from the county rules referenced above, since the total wet exhaust volume from any unit is greater than the dry exhaust volume, while the total mass of particulate matter is constant. This is verified by comparing the F factors in 40 CFR 60, Appendix A, Table 19.1. F_w (wet) is always greater than F_d (dry) for any fuel, and when F_w is substituted for F_d in the compliance calculations below in Step 3, it will always yield a lower PM emissions value than F_d. Therefore the proposed conditions are more stringent than the county rules.

Step 3. Conditions ensuring compliance with applicable requirements

An excess air concentration of 0% in the exhaust results in the maximum particulate matter concentration for any given emission rate. Therefore, the following calculations use an uncorrected F factor to represent worst-case emissions. Calculations determining the excess air concentrations for 12% CO_2 are shown in Appendix A.

GASEOUS FUEL FIRED UNITS

The following calculations, using AP42 emission factors for natural gas, demonstrate that the emission of PM during the firing of gaseous fuels complies with the limits of these rules.

$$\left(\frac{13.7\ lb\ \text{PM}}{10^6\ cf}\right)\left(\frac{1\ scf}{900\ Btu}\right)\left(\frac{100\ MMBtu}{hr}\right) = \left(\frac{1.52\ lb\ PM}{hr}\right) < \left(\frac{10\ lb\ PM}{hr}\right)$$

$$\left(\frac{13.7\ lb\ \text{PM}}{10^6\ ft^3}\right)\left(\frac{1\ scf}{900\ Btu}\right)\left(\frac{1\ MMBtu}{8710\ dscf}\right)\left(\frac{7000\ grain}{1\ lb}\right) = \left(\frac{0.01\ grain}{dscf}\right) < \left(\frac{0.1\ grain}{dscf}\right)$$

where:

$13.7\ \frac{lb\ PM}{10^6\ cf}$ = sum of filterable and condensable uncontrolled emission factors for natural gas-fired boilers (AP42, Table 1.4-2)

$\frac{900\ Btu}{1\ scf}$ = the minimum expected higher heating value of natural gas (AP42, Table 1.4.1)

$\frac{100\ MMBtu}{hr}$ = maximum heat input this template

$\frac{8710\ dscf}{1\ MMBtu}$ = F factor, Fd, for natural gas at 0% O_2 (40CFR60, App. A, Table 19-1)

$\frac{10{,}610\ \text{w}scf}{1\ MMBtu}$ = F factor, Fw, for natural gas at 0% O_2 (40CFR60, App. A, Table 19-1)

$\frac{7000\ grain}{1\ lb}$ = conversion factor (AP42, Appendix A)

The only constituents found in non-regulated gas streams that contribute to the formation of PM are sulfur and, occasionally, trace amounts of metals. Any metals present in the gas stream are removed during the free water knock-out stage in the condenser at the compressor. The results of source tests on units operating on combined waste gas and natural gas show PM levels far below allowable levels (actual source tests are on file with the District). Based on these source test results and the preceding compliance analysis, compliance with applicable PM limits is assured without the need for PM testing.

DIESEL FUEL OIL UNITS

For diesel fired units, the 12% CO_2 correction required by District Rule 4301 in the exhaust stream occurs at 4% O_2. A more conservative analysis is obtained by calculating emissions at 0% O_2 and thus, the following compliance analysis uses F-factors uncorrected from 0% O_2.

$$\left(\frac{2\ lb\ PM}{10^3\ gal}\right)\left(\frac{1\ gal}{137{,}000\ Btu}\right)\left(\frac{100\ MMBtu}{hr}\right) = 1.5\frac{lb\ PM}{hr} \ < \ 10\frac{lb\ PM}{hr}$$

$$\left(\frac{2\ lb\ \mathrm{PM}}{10^3\ gal}\right)\left(\frac{1\ gal}{137{,}000\ Btu}\right)\left(\frac{1\ MMBtu}{9190\ dscf}\right)\left(\frac{7000\ gr}{1\ lb}\right) = \left(\frac{0.01\ grain}{dscf}\right) < \left(\frac{0.1\ grain}{dscf}\right)$$

where:

$\frac{2\ lb\ \mathrm{PM}}{10^3\ gal}$ = the emission factor for filterable PM, No. 2 fuel oil, (AP-42, Table 1.3-2)

$\frac{137{,}000\ Btu}{1\ gal\ diesel}$ = heating value (AP-42, Appendix A)

$\frac{9190\ dscf}{MMBtu}$ = F factor, F_d, for oil (40CFR60, App. A, Meth. 19, Table 19-1)

$\frac{10{,}320\ wscf}{MMBtu}$ = F factor, F_w, for oil (40CFR60, App. A, Meth. 19, Table 19-1)

The preceding calculations demonstrate that the emissions of PM are expected to be well below applicable limits. Compliance with these limits is expected for even the largest units covered by this template and, therefore, no testing, recordkeeping, reporting, or monitoring will be required for these units.

RESIDUAL OIL FIRED (INCLUDING CRUDE OR TOPPED CRUDE)

Compliance with PM limits will be assured by template permit conditions that require source testing when firing on residual oil (including crude or topped-crude). The operator is required to record daily amount of all fuels combusted, the dates on which firing on any fuel other than certified gaseous or diesel fuel has occurred by permit condition #4, as well as the type of non-certified fuel fired. If a unit is fired on residual oil at any time during a calendar year, the operator is required by template permit condition #9 to show compliance with the PM emission limits by source testing the unit during such firing and within 60 days of said firing.

Step 4. Certify compliance

By using this template as part of the Title V application, the applicant is certifying compliance with all conditions required as part of the template.

Step 5. Compliance schedule for new monitoring requirements

Not applicable.

Step 6. Request for permit shield

District Rule 4301 has been submitted to the EPA to replace SIP approved Rules 405 (Madera), 408 (the seven remaining counties). District Rule 4201 has been submitted to the EPA to replace SIP approved Rules 402 (Madera), 404 (Fresno, Kern, Kings, Merced, San Joaquin, Stanislaus, and Tulare), and 404.1 (Kern). The EPA issued a stringency finding dated August 20,1996 stating that District Rules 4201 and 4301 are more stringent than the SIP approved county rules referenced above. By using this template the applicant is requesting a permit shield from these county SIP rules and of the requirements of District Rule 4201, 4301, and County Rules 408.2 (Merced) and 407.2 (San Joaquin, Kings, Tulare, Kern, and Stanislaus). See template permit conditions #22 and #23.

<u>District Rule 4301 and County Rules 404 (Madera), 406 (Fresno), and 407 (Kern, Tulare, Kings, Stanislaus, Merced, and San Joaquin), and 40 CFR 60, Subpart Dc:</u>

These rules contain limits on emissions of sulfur oxides (SO_x), as follows:

Rule 4301 limits emissions to 200 lb/hr of sulfur compounds, calculated as SO_2.

County Rules 404, 406, and 407 limit the emission of sulfur compounds to 0.2% by volume (2000 ppmv) calculated as SO_2, on a dry basis averaged over 15 minutes.

The requirements of 40 CFR 60, Subpart Dc limit the sulfur content in fuel oil to 0.5 % sulfur by weight for units which are oil fired. It also contains requirements for coal fired units and for units combusting oil and gaseous fuels simultaneously. This

template does not address coal fired units and units which simultaneously fire oil and gaseous fuels. Such units are prohibited from using this template in the Template Qualification Form (TQF) and therefore requirements for dual fired units from 40 CFR 60, Subpart Dc, are not applicable to units using this template.

The following analysis shows the proposed SO_x requirements are at least as stringent as District Rule 4301, County Rules 404[9], 406[10], and 407[11]; and 40 CFR §60.40c. Streamlining procedures, as documented in the following steps, are used to substitute the proposed set of requirements for the otherwise applicable requirements.

[9] Madera
[10] Fresno
[11] Kern, Tulare, Kings, Stanislaus, Merced, and San Joaquin

Step 1. Side-by-side Comparison of emission limits

SULFUR DIOXIDE				
CITATION:	**District Rule 4301**	**County Rules 404, 406, and 407**	**40 CFR § 60.40c (Subpart Dc)**	**Proposed Requirements**
WORK PRACTICE STANDARDS:	•none	•none	•none	•0.5% by weight fuel oil sulfur content [60.42c(d)]
EMISSION LIMIT:	•200 lb sulfur compounds/hr, calculated as SO_2 [5.2.1]	•Two-tenths (0.2) percent by volume calculated as sulfur dioxide (SO_2), on a dry basis averaged over 15 consecutive minutes	•0.5 lb SO_x/MMBtu of heat input when fired on fuel oil or 0.5% by weight maximum fuel oil sulfur content [60.42c(d)] •These limits shall apply at all times, including startup, shutdown, and malfunction. [60.42c(i)]	•200 lb sulfur compounds/hr, when using gaseous fuels or use of PUC or FERC certified gaseous fuels [4301, 5.2.1]
MONITORING:	•none	•none	• If compliance is demonstrated using fuel sulfur sampling, monitor pursuant to 60.44c(g) and 60.46c(d)(2). [60.44c(g) and 60.46c(e)] • compliance with fuel sulfur limit determined on 30-day rolling average or supplier certification for all distillate oil fired units and residual oil fired units less than or equal to 30 MMBtu/hr [60.42c(g) and (h)]	•If the unit is not fired on oil fuel with supplier-certified 0.05% sulfur content or less, by weight, the sulfur content of each fuel source shall be tested weekly except that if compliance with the fuel sulfur content limit has been demonstrated for 8 consecutive weeks for a fuel source, then the testing frequency shall be semiannual. [District Rule 2520, 9.4.2]
RECORDKEEPING:	•none	•none	• As required by 40 CFR § 60.48c •all records maintained for 2 years [60.48c(i)]	•Maintain all records for 5 years [District Rule 2520, 9.4.2 and 9.5.2] •Recordkeeping for fuel oil fired units, pursuant to 40 CFR 60.48c
REPORTING:	•none	•none	•As required by 40 CFR § 60.48c	•Submit to APCO reporting for fuel oil fired units, pursuant to 40 CFR 60.48c

TEST METHODS:	•Sulfur compounds by EPA Method 8 or ARB Method 8 [5.4]	•none	• Fuel supplier certification if allowed **or** fuel sulfur sampling, [60.42c(h), 60.44c(h), (g) and 60.46c(e)]	•Fuel supplier certification for sulfur content [60.42c(h)] •ASTM Method D 1072-80, D 3031-81, D 4084-82, D 3246-81, or GC-FPD/TCD for sulfur content of gaseous fuels [District Rule 2520, 9.4.2] •ASTM D 2880-71 sulfur content for liquid fuel [District Rule 2520, 9.4.2] • Higher heating value cert. by 3rd party supplier, or determined by ASTM D240-87 or D2382-88 for liquid fuels or ASTM D1826-88 or D 1945-81 in conjunction with ASTM D 3588-89 for gaseous fuels [District Rule 2520, 9.4.2] •stack testing using EPA Method 6B or 8. [District Rules 2520, 9.4.2, and 4301, 5.4]

Step 2. Select most stringent emission limit or performance standard

The proposed SO_x emission limits and standards of:

Using PUC or FERC certified natural gas

0.5% by weight fuel oil sulfur content

200 lb sulfur compounds/hr, calculated as SO_2 when using gaseous fuels

are at least as stringent as those imposed by District Rule 4301; County Rules 404, 406, and 407; and 40 CFR 60.42c, as demonstrated below:

Compliance With SO_x Limits - District Rule 4301

USING CERTIFIED NATURAL GAS FUELS

PUC regulated natural gas has a maximum sulfur content of 0.017% by weight [Public Utilities Code General Order 58-B]. FERC gas has an even lower sulfur content (~ 0.0026%, see Appendix B). The maximum sulfur concentration allowed under Rule 4301 for units subject to this template will be:

$$\frac{\left(100\frac{lb\ S}{hr}\right)\left(\frac{453.59\ g\ CH_4}{lb\ CH_4}\right)\left(\frac{23.7\ L\ CH_4}{gmol\ CH_4}\right)\left(\frac{0.00105\ MMBtu}{scf\ CH_4}\right)}{\left(\frac{16.04\ g\ CH_4}{gmol\ CH_4}\right)\left(\frac{28.317\ L\ CH_4}{scf\ CH_4}\right)\left(\frac{100\ MMBtu}{hr}\right)} = \left(\frac{0.025\ lb\ S}{lb\ CH_4}\right) \approx 2.5\%$$

where:

$100\frac{lb\ S}{hr} = 200\frac{lb\ SO_2}{hr}$ = emission limit (see Appendix D)

$\frac{453.59\ g\ CH_4}{lb\ CH_4}$ = conversion factor (AP-42, Appendix A)

$23.7\frac{L}{gmol} = \frac{(288.71K)\left(22.4\frac{L}{gmol}\right)}{273.15K}$ = molar volume of an ideal gas corrected to standard conditions (60° F, 14.7 psi) per Charles' Law

$\frac{0.00105\ MMBtu}{scf\ CH_4}$ = heating value for natural gas (AP-42, Appendix A)

$\frac{16.04\ g\ CH_4}{gmol\ CH_4}$ = molecular weight of gaseous fuel

$\frac{28.317\ L\ CH_4}{scf\ CH_4}$ = conversion factor (AP-42, Appendix A)

$100\frac{MMBtu}{hr}$ = maximum heat input allowed by this template

The preceding calculation shows that an emission rate of 200 lb SO_2/hr corresponds to 2.5% by weight sulfur content. Since the maximum sulfur content of PUC or FERC regulated natural gas is far below this limit (0.017%), units using PUC or FERC regulated natural gas will comply with this requirement.

USING NON-CERTIFIED GASEOUS FUELS

The limit determined above for gaseous fuels is 2.5% sulfur by weight. This value is conservative for field gas which frequently has a lower heating value and higher exhaust volume flow rate than pure methane. Operators may choose to comply with this fuel sulfur limit by testing gaseous fuel for sulfur content and determining hourly emissions using maximum heat input of the unit, or by source testing in combination with fuel analysis. Fuel sulfur content testing shall be performed weekly except that if compliance has been demonstrated for eight consecutive weeks, then the testing frequency shall be semi-annual. In all cases, operator shall record dates on which the unit is fired on non-certified fuel. Compliance with this rule is assured.

USING CERTIFIED DIESEL FUEL

Diesel-fired units qualifying to use this template are limited to the combustion of distillate fuel with a sulfur content less than 0.5%. The following demonstration illustrates, by solving for fuel sulfur content at the Rule 4301 emission limit, that the proposed limitation is more stringent than District Rule 4301, 5.2.1.

$$\frac{\left(100\frac{lb\cdot S}{hr}\right)\left(\frac{0.137\ MMBtu}{1\ gallon\ fuel\ oil}\right)}{\left(\frac{7.05\ lb\ fuel\ oil}{1\ gallon\ fuel\ oil}\right)\left(100\frac{MMBtu}{hr}\right)} = \frac{0.019\ \ lb\,S}{lb\ fuel\ oil} \cong 2\%\ weight\ sulfur\ content$$

where:

$\left(100\frac{lb\cdot S}{hr}\right) = \left(200\frac{lb\cdot SO_2}{hr}\right)$ = District Rule 4301, 5.2.1 emission limit (see Appendix F)

$\left(\frac{7.05\,lb\ fuel\ oil}{1\ gallon\ fuel\ oil}\right)$ the density of distillate oil (AP-42 Appendix A)

$\left(100\frac{MMBtu}{hr}\right)$ = maximum rated heat input for this template

$\left(\frac{0.137\ MMBtu}{1\ gallon\ fuel\ oil}\right)$ = higher heating value of distillate oil (AP-42 Appendix A)

The preceding analysis shows that the allowable fuel sulfur content at District Rule 4301 maximum emission limit and at the maximum heat input of this template, is 2% weight sulfur content. This demonstrates that the proposed fuel sulfur limit, 0.5% by weight sulfur content, is clearly more stringent.

USING NON-CERTIFIED LIQUID FUELS (RESIDUAL OR CRUDE OIL)

$$\frac{\left(\frac{157\,(\mathrm{S})\ lb\ SO_2}{10^3\ gal\ oil}\right)\left(\frac{100\ MMBtu}{hr}\right)}{\left(\frac{150\ MMBtu}{10^3\ gal\ oil}\right)} = \left(\frac{200\ lb\ SO_2}{hr}\right)$$

where:
$S \equiv$ weight % of sulfur in the oil

$\frac{157\,(\mathrm{S})\ lb\ SO_2}{10^3\ gal}$ = uncontrolled emission factor for SO_2 (AP-42, Table 1.3-2)

$\frac{100\ MMBtu}{hr}$ = maximum rated heat input for this template

$\frac{150{,}000\ Btu}{1\ gal\ diesel}$ = heating value of residual oil (AP-42, Appendix A)

$\frac{200\ lb\ SO_2}{hr}$ = District Rule 4301 emission limit

The preceding analysis shows that the allowable fuel sulfur content at District Rule 4301 maximum emission limit and at the maximum heat input of this template, is 1.9% weight sulfur content. This demonstrates that the proposed fuel sulfur limit, 0.5% by weight sulfur content, is clearly more stringent.

Compliance with SO_x Limits - County Rules 404, 406, And 407:

County Rules 404, 406, and 407 limit the emission of sulfur compounds to 0.2% by volumes (2000 ppmv) calculated as SO_2, on a dry basis averaged over 15 minutes. The following demonstration illustrates, by conversion of units of measure and comparison with predicted SO_x emissions using AP-42 emission factor, that the proposed requirements are more stringent than County Rules 404, 406, and 407.

USING PUC OR FERC CERTIFIED NATURAL GAS

PUC regulated natural gas has a maximum sulfur content of 0.017% by weight [Public Utilities Code General Order 58-B]. FERC regulated gas has a lower maximum sulfur content (~ 0.0026%, see Appendix B). Assuming that 0% excess air in the exhaust

stream corresponds with maximum SO_x emissions concentration (neglecting NO_x and SO_x relative to SO_2 in the exhaust) and that CH_4 represents a typical gaseous fuel, the combustion equation is:

$$CH_4 + 2O_2 + 7.56N_2 + YS \rightarrow CO_2 + 2\ H_2O + YSO_2 + 7.56N_2$$

where:

Y = moles of sulfur in the fuel.

Solving an expression for the fraction of SO_2 in the dry exhaust by volume gives:

$$\frac{Y}{1 + 7.56} = 0.002 \Rightarrow Y = 0.01712$$

where:
Y = mole fraction of S per mole of CH_4 combusted
1 = one mole of CO_2
7.56 = number of moles of N_2
0.002 = 0.2% by volume = 2000 ppmv limit per County Rule 407

Use Y to calculate the weight fraction of S in one mole of CH_4:

$$\frac{(0.01712)(32.06)}{(16.04) + (0.01712)(32.06)} = 0.033 \Rightarrow 3.3\%\ \text{S by weight in the fuel.}$$

where:
32.06 = molecular weight of sulfur (S)
16.04 = molecular weight of methane (CH_4)
0.033 = fraction of S by weight in the fuel

The preceding calculation shows that an exhaust concentration of 0.2% by volume corresponds to a gaseous fuel sulfur content by weight of 3.3%. Therefore, the use of PUC or FERC regulated gas with a maximum sulfur content of 0.017% will assure compliance with this requirement.

USING CERTIFIED DIESEL FUEL

Diesel -fired units qualifying to use this template are limited to the combustion of distillate fuel with a sulfur content less than 0.5%. The following demonstration illustrates that the proposed limitation is more stringent than the county rules.

$$\frac{\left(\frac{142\,(0.5)\ lb\ SO_x}{10^3\ gal\ diesel}\right)\left(\frac{23.7\ L\ SO_2}{gmol\ SO_2}\right)\left(\frac{0.035315\ dscf\ SO_2}{L\ SO_2}\right)\left(\frac{453.59\ g\ SO_2}{lb\ SO_2}\right)}{\left(\frac{9190\ dscf\ exhaust}{MMBtu}\right)\left(\frac{64.14\ g\ SO_2}{gmol\ SO_2}\right)\left(\frac{137\ MMBtu}{10^3\ gal\ diesel}\right)} = \left(\frac{0.0003\ dscf\ SO_2}{dscf\ exhaust}\right) < \left(\frac{0.002\ dscf\ SO_2}{dscf\ exhaust}\right)$$

where:

S ≡ weight % of sulfur in the oil = 0.5 = fuel sulfur limit this template

$\frac{142\ S\ lb\ SO_2}{10^3\ gal}$ = uncontrolled emission factor for SO_2 (AP-42, Table 1.3-2)

$23.7\frac{L}{gmol} = \frac{(288.71K)\left(22.4\frac{L}{gmol}\right)}{273.15K}$ = molar volume of an ideal gas corrected to District standard conditions (60° F, 14.7 psi) per Charles' Law

$0.035315\frac{ft^3}{L}$ = conversion factor (AP-42, Appendix A)

$453.59\frac{g}{lb}$ = conversion factor (AP-42, Appendix A)

$9190\frac{dscf}{MMBtu}$ = F-factor, F_d, for oil (40 CFR § 60, App. A, Meth. 19, Table 19-1)

$64.14\frac{g \cdot SO_2}{gmol}$ = molecular weight, SO_2

$\frac{137{,}000\ Btu}{1\ gal\ diesel}$ = higher heating value of distillate oil (AP-42, Appendix A)

$0.002\frac{parts \cdot SO_2}{parts \cdot exhaust}$ = County Rules 404, 406, and 407 emission limit

The preceding calculation shows that, for diesel fired units, an emission concentration of 0.03% by volume is expected; this concentration is 16.7% of that allowed by these county rules.

USING NON-CERTIFIED GASEOUS FUELS

The limit determined above for gaseous fuels is 3.3% sulfur by weight. This value is conservative for field gas which frequently has a lower heating value and higher exhaust volume flow rate than pure methane. The proposed requirement of 200 lb sulfur compounds/hour (equivalent to 2.5% sulfur by weight as demonstrated earlier) for non-certified gaseous fuels is more stringent than County Rules 404, 406 and 407.

USING NON-CERTIFIED LIQUID FUELS (RESIDUAL OR CRUDE OIL)

$$\frac{\left(\frac{157\,(\mathrm{S})\ lb\ SO_x}{10^3\ gal\ oil}\right)\left(\frac{23.7\ L\ SO_2}{gmol\ SO_2}\right)\left(\frac{0.035315\ dscf\ SO_2}{L\ SO_2}\right)\left(\frac{453.59\ g\ SO_2}{lb\ SO_2}\right)}{\left(\frac{9190\ dscf\ exhaust}{MMBtu}\right)\left(\frac{64.14\ g\ SO_2}{gmol\ SO_2}\right)\left(\frac{150\ MMBtu}{10^3\ gal\ oil}\right)} = \left(\frac{0.002\ dscf\ SO_2}{dscf\ exhaust}\right)$$

where:

$S \equiv$ weight % of sulfur in the oil

$\frac{157\,(\mathrm{S})\ lb\ SO_2}{10^3\ gal} =$ uncontrolled emission factor for SO_2 (AP-42, Table 1.3-2)

$23.7\frac{L}{gmol} = \frac{(288.71K)\left(22.4\frac{L}{gmol}\right)}{273.15K} =$ molar volume of an ideal gas corrected to District standard conditions (60° F, 14.7 psi) per Charles' Law

$0.035315\frac{ft^3}{L} =$ conversion factor (AP-42, Appendix A)

$453.59\frac{g}{lb} =$ conversion factor (AP-42, Appendix A)

$9190\frac{dscf}{MMBtu} =$ F-factor, F_d, for oil (40 CFR § 60, App. A, Meth. 19, Table 19-1)

$64.14\frac{g \cdot SO_2}{gmol} =$ molecular weight, SO_2

$\frac{150{,}000\ Btu}{1\ gal\ diesel} =$ heating value of residual oil (AP-42, Appendix A)

$0.002\frac{parts \cdot SO_2}{parts \cdot exhaust} =$ County Rules 404, 406, and 407 emission limit

The preceding calculation shows that an exhaust concentration of 0.2% sulfur compounds by volume corresponds to a fuel sulfur content by weight of 3.0%. The proposed limit for fuel oil to contain 0.5% sulfur by weight is more stringent than the limit of County Rules 404, 406, and 407.

Compliance With SO_x Limits - 40 CFR 60, Subpart Dc:

The proposed requirements contain the 0.5% fuel oil sulfur content limit from 40 CFR § 60.40c for units which are oil fired. In addition the proposed requirements also contain emission limits for units which combust gaseous fuel, but not in combination with oil, which 40 CFR § 60.40c does not address. Therefore, the proposed limits are more stringent than the limits of 40 CFR § 60.40c.

The proposed monitoring conditions require weekly testing of non-certified fuel oil sulfur content, semiannual testing if compliance is demonstrated for 8 consecutive weeks for a fuel source, with weekly testing resuming if a semi-annual fuel content source test fails to show compliance. This monitoring requirement is as effective in demonstrating compliance as the monitoring requirements of 40 CFR § 60.40c. This federal regulation requires sampling and testing of each new shipment of oil fuel prior to combustion and allows a 30-day rolling average (result of each test is considered a daily value in determining the rolling average) to show compliance with the sulfur fuel limit. The proposed limit requires each test result to show compliance with the limit. In addition, the NSPS monitoring is specifically tailored for sources that receive fuel oil shipments from outside sources. Sources qualifying to use this template typically use fuel oil produced on-site, which is consistent in sulfur content. They do not receive "shipments" of fuel oil, making the NSPS test frequency ambiguous. In addition, steam generator fuel tanks typically range in capacity from 5,000 to 10,000 barrels and units typically combust 200 barrels per day. Some smaller sources may have tanks of 1,000 barrel capacity. Therefore, fuel tanks would generally not be filled more often than weekly, making weekly testing an appropriate monitoring frequency. Finally, there are very few Title V sources qualifying to use this template which still combust fuel oil in steam generators.

Step 3. Conditions ensuring compliance with applicable requirements

PUC OR FERC CERTIFIED FUELS

The use of PUC or FERC certified fuels demonstrates compliance with all applicable rules. Adequate monitoring and recordkeeping is assured by condition #4 requires the operator to maintain copies of all fuel invoices and gas purchase contracts.

NON-CERTIFIED GASEOUS FUELS

Compliance with the emission limit of 200 lb sulfur compounds/hr is required for units using non-certified gaseous fuels. Operators may choose to comply with this fuel sulfur limit by a combination of source testing for sulfur compounds and fuel analysis. Fuel sulfur content testing shall be performed weekly except if compliance has been demonstrated for eight consecutive weeks, then the testing frequency shall be semi-annual. In all cases, operator shall record dates on which the unit is fired on non-certified fuel. See conditions #4, #10, #12- #14 and #16.

USING OIL FUELS

Oil-fired units qualifying to use this template are required by permit condition to comply with the 0.5% fuel sulfur content limit and associated monitoring, recordkeeping, and testing. Units will show compliance by keeping supplier certifications for fuels with a weight percent fuel content less than 0.5% and by testing the fuel sulfur content of non-certified oil fuels. See conditions #4, #10 -13, and #15 - #21.

Step 4. Certify compliance

By using this template as part of the Title V application, the applicant is certifying compliance with all conditions required as part of the template.

Step 5. Compliance schedule for new monitoring requirements

Not applicable.

Step 6. Request for permit shield

District Rule 4301 has been submitted to the EPA to replace SIP approved Rules 405 (Madera), 408 (the seven remaining counties). The EPA issued a stringency finding dated August 20,1996 stating that District Rule 4301 is more stringent than the county SIP approved rules referenced above. By using this template the applicant is requesting a permit shield from these county SIP rules and the requirements of District Rule 4301; County Rules 404[12], 406[13], 407[14], and 40 CFR 60, Subpart Dc, except 60.44c(g) and (h) and 60.48c. See conditions #22 - 24.

40 CFR part 60 Subpart Dc

Opacity Limits

For units with a heat input capacity greater than 30 MMBtu/hr, 40 CFR § 60.43c(c) and (d) requires that during oil firing the operator limit the opacity of any discharged gases to 20% (6 minute average) except for one 6-minute period per hour of not more than 27% opacity. Operators of residual oil fired units, with a heat input capacity greater than 30 MMBtu/hr, must install, calibrate, maintain and operate a CEMS for measuring opacity of emissions and record the output of the system, pursuant to 40 CFR § 60.47c(a) and (b). Permit conditions #1, #2, and #20 assure compliance with these requirements and associated recordkeeping and reporting.

NSPS start up conditions will not be addressed in the template permit conditions. Start up conditions were covered in the initial application prior to commencement of construction. Therefore, any start up conditions that are on the District Permit to Operate must be addressed in the Title V application outside of this template.

District Rules 4301, 5.2.2

This rule limits the emission of NO_x to 140 lb/hr (calculated as NO_2). The following analysis demonstrates that compliance is expected:

[12] Madera
[13] Fresno
[14] Kern, Tulare, Kings, Stanislaus, Merced, and San Joaquin

GAS FIRED:

$$\left(\frac{140\frac{lb\cdot NO_X}{10^6\cdot ft^3}}{0.00105\frac{MMBtu}{ft^3}}\right)\left(100\frac{MMBtu}{hr}\right)=13.3\frac{lb\cdot NO_X}{hr}$$

DISTILLATE FUEL OIL FIRED:

$$\left(\frac{20\frac{lb\cdot NO_X}{10^3\cdot gal}}{0.137\frac{MMBtu}{gal}}\right)\left(100\frac{MMBtu}{hr}\right)=14.6\frac{lb\cdot NO_X}{hr}$$

RESIDUAL FUEL OIL FIRED:

$$\left(\frac{55\frac{lb\cdot NO_X}{10^3\cdot gal}}{0.150\frac{MMBtu}{gal}}\right)\left(100\frac{MMBtu}{hr}\right)=36.7\frac{lb\cdot NO_X}{hr}$$

where:

$55\frac{lb\cdot NO_X}{10^3\cdot gal}$ = uncontrolled NO_x emission factor for residual oil fired boilers (AP42, Table 1.3-2)

$20\frac{lb\cdot NO_X}{10^3\cdot gal}$ = uncontrolled NO_x emission factor for distillate oil fired boilers (AP42, Table 1.3-2)

$0.137\frac{MMBtu}{gal}=137{,}000\frac{Btu}{gal}$ = heating value for distillate oil, conservative (AP42, Appendix A)

$0.150\frac{MMBtu}{gal}=150{,}000\frac{Btu}{gal}$ = heating value for residual oil (AP42, Appendix A)

$140\frac{lb\cdot NO_X}{10^6\cdot ft^3}$ = uncontrolled NO_x emission factor for gas fired boilers (AP42, Table 1.4-2)

$0.00105\frac{MMBtu}{ft^3}=1050\frac{Btu}{ft^3}$ = natural gas heating value (AP42, Table 1.4-2)

The preceding calculations clearly demonstrate that NO_x emissions, for even the largest units covered by this template, are well below the limit of 140 lb/hr from District Rule 4301. When firing on either gaseous or distillate fuel oil, NO_x emissions are approximately 1/10 or less of that allowed by Rule 4301. When firing on residual oil, NO_x emissions are approximately 1/4 or less of the limit of Rule 4301. For gaseous and distillate oil fueled units, compliance is assured without testing, recordkeeping and

monitoring requirements. For residual and crude oil fired units, compliance is assure by conditions #6 and #7.

V. Permit Shield

A permit shield legally protects a facility from enforcement of the shielded regulations when a source is in compliance with the terms and conditions of the Title V permit. Compliance with the terms and conditions of the Title V permit is considered compliance with all applicable requirements upon which those conditions are based, including those that have been subsumed.

By using this template the applicant is requesting a permit shield from County Rules 108 (Kings), 108.1 (Fresno, Merced, San Joaquin, Tulare, Kern and Stanislaus), and 110 (Madera). See template permit condition #23.

District Rule 4301 has been submitted to the EPA to replace county Rules 405 (Madera) and 408 (Fresno, Kern, Kings, Merced, San Joaquin, Stanislaus, and Tulare). EPA issued a stringency finding dated August 20,1996 stating District Rule 4301 is more strict than the SIP approved county rules referenced above. By using this template the applicant is requesting a permit shield from these county SIP rules, District Rule 4301, and 40 CFR, Subpart Dc. See template permit conditions #22 - #24.

A permit shield will also be granted for 40 CFR 72.6 because facilities qualifying to use this template are not acid rain sources. Boilers and steam generators that have produced electricity for sale in 1985 or on or after November 15, 1990 are disqualified from this template in the attached Template Qualification Form. Therefore, there are no boilers or steam generators that are part of a Title IV source that will use this template as part of a Title V permit application. A permit shield is granted from this requirement in template permit condition #25.

VI. Permit Conditions

Conditions #1 and #2 will not be applicable to all units using this template and therefore will only be incorporated into the Title V permit for any unit to which they apply as follows: condition #1 applies to steam generators with heat input capacity greater than 30 MMBtu/hr and permitted to fire on oil; condition #2 applies to steam generators with a heat input capacity greater than 30 MMBtu/hr and permitted to fire on residual oil. Conditions #3 - #25, as follows, will be incorporated into the Title V permit of any facility choosing to make use of template SJV-BSG-19-0:

Conditions for Steam Generators with Heat Input Capacity > 30 MMBtu/hr

1. If a unit is being fired on oil, any discharged gases shall be limited to 20% opacity (6 minute average) except for one 6 minute period per hour of not more than 27% opacity;

Method 9 shall be used for determining the opacity of stack emissions at annual inspections while firing on oil fuel. [40 CFR § 60.43c(c) and 60.45c(a)(7)]

2. The operator shall install, calibrate, maintain, and operate a CEMS for measuring opacity of emissions and record the output of the system, while firing on residual oil fuel. All CEMS for measuring opacity shall be operated in accordance with applicable procedures under Performance Specification 1 (Appendix B) of 40 CFR § 60. The span value of the opacity CEMS shall be between 60 and 80 percent. [40 CFR § 60.47c(a) and (b)]

Conditions for All Boilers Qualified to Use this Template

3. All required source testing shall conform to the compliance testing procedures described in District Rule 1081 (Last Amended December 16, 1993). [District Rule 1081, and County Rules 108 (Kings), 108.1 (Fresno, Merced, San Joaquin, Tulare, Kern, and Stanislaus), and 110 (Madera)]

4. Copies of all fuel invoices, gas purchase contract, supplier certifications, and test results used to determine compliance with the conditions of this permit shall be maintained. The operator shall record daily amount and type(s) of fuel(s) combusted and all dates on which unit is fired on any noncertified fuel. [District Rule 2520, 9.4.2 and 40 CFR 60.48c(g)]

5. Operator shall maintain all records of required monitoring data and support information for inspection at any time for a period of five years. [District Rule 2520, 9.5.2]

6. Nitrogen oxide (NO_x) emissions shall not exceed 140 lb/hr, calculated as NO_2. For residual and crude oil fired units, compliance may be demonstrated through supplier certification of nitrogen content and heating value or by weekly fuel testing for nitrogen content and heating value. Hourly emissions shall be calculated using the heating value, maximum rated unit capacity, and the following formula: lb NO_2/1000 gal = 20.54 + 104.39 (N), where N is the weight % nitrogen in the fuel. If compliance with the NO_x emission limit is demonstrated through the fuel nitrogen content testing and compliance has been demonstrated for 8 consecutive weeks for a fuel source, then the fuel testing frequency shall be bi-annually. If a bi-annual fuel content source test fails to show compliance, weekly testing shall resume. [District Rules 4301, 5.2.2, 5.3, and 5.5 and 2520, 9.4.2]

7. If the unit is fired on noncertified residual or crude oil and compliance with NO_x emission limits is achieved through fuel nitrogen content testing, then the nitrogen content of the fuel being fired in the unit shall be determined using ASTM D3431-80. [District Rule 2520, 9.4.2]

8. Particulate matter emissions shall not exceed 0.1 grain/dscf, 0.1 grain/dscf calculated to 12% CO_2, nor 10 lb/hr. [District Rules 4201, 3.1 and 4301, 5.1 and 5.2.3]

9. Source testing shall be performed using EPA Method 5 while firing on residual oil (including crude or topped crude) to demonstrate compliance with PM emission limits. Source testing shall be performed within 60 days of firing on residual oil unless such testing has been performed within the 12 month period prior to firing on said oil and the test results showed compliance with PM emission limits of this permit. [District Rule 2520, 9.4.2]

10. Emissions of sulfur compounds from this unit shall not exceed 200 lb per hour, calculated as SO_2. Compliance with this requirement may be demonstrated by firing the unit only on PUC or FERC regulated natural gas or on diesel fuel not exceeding 0.5% sulfur by weight; or by testing the sulfur content of each fuel and determining the maximum hourly emissions of sulfur compounds by multiplying the sulfur content of each fuel in lb/MMBtu by the maximum heat input rating of the unit; or by source testing in combination with fuel analysis. [District Rules 2520, 9.4.2 and 4301, 5.2.1]

11. The sulfur content of oil combusted in this unit shall not exceed 0.5% by weight. Compliance with this limit may be determined by supplier certification or fuel testing. [40 CFR § 60.42c(d)]

12. When complying with sulfur emission limits by fuel analysis or by a combination of source testing and fuel analysis, each fuel source shall be tested weekly for sulfur content and higher heating value. If compliance with the fuel sulfur content limit and sulfur emission limits has been demonstrated for 8 consecutive weeks for a fuel source, then the fuel testing frequency shall be semi-annually. If a semi-annual fuel content source test fails to show compliance, weekly testing shall resume. [District Rule 2520, 9.4.2]

13. When complying with SO_x emission limits by testing of stack emissions, testing shall be performed not less than once every 12 months using EPA Method 6B; or Method 8; or, for units using gaseous fuel scrubbed for sulfur pre-combustion, a grab sample analysis by GC-FPD/TCD performed in the laboratory and EPA Method 19 to calculated emissions. Gaseous fuel fired units demonstrating compliance on two consecutive annual source tests shall be tested not less than once every thirty-six months, however annual source testing shall resume if any test fails to show compliance. [District Rule 2520, 9.4.2]

14. If the unit is fired on noncertified gaseous fuel and compliance with SO_x emission limits is achieved through fuel sulfur content limitations, then the sulfur content of the gaseous fuel being fired in the unit shall be determined using ASTM D 1072-80, D 3031-81, D 4084-82, D 3246-81 or grab sample analysis by GC-FPD/TCD performed in the laboratory. [District Rule 2520, 9.4.2]

15. If the unit is fired on non-certified liquid fuel and compliance with SO_x emission limits is achieved through fuel sulfur content limitations, then the sulfur content of the

liquid fuel being fired in the unit shall be determined using ASTM D 2880-71. [District Rule 2520, 9.4.2]

16. If fuel analysis is used to demonstrate compliance with conditions of this permit, the fuel higher heating value for each fuel shall be certified by a third party fuel supplier or determined by: ASTM D 240-87 or D 2382-88 for liquid hydrocarbon fuels; ASTM D 1826-88 or D 1945-81 in conjunction with ASTM D 3588-89 for gaseous fuels. [District Rule 2520, 9.4.2; 4305, 6.2.1; and 4351, 6.2.1]

17. Distillate oil supplier certification of sulfur content shall include the name of oil supplier and a statement that the oil complies with the specification for fuel oil numbers 1 or 2, as defined by ASTM D396-78, “Standard Specification for Fuel Oils.” [40 CFR § 60.48c(f)(1)]

18. Residual oil supplier certification of sulfur content shall include: 1) the name of oil supplier, 2) the location of the oil when the sample was drawn for analysis to determine the sulfur content, specifically including whether the oil was sampled as delivered to the facility, or whether the sample was drawn from oil in storage at the oil supplier’s or oil refiner’s facility, or other location, 3) the sulfur content of the oil from which the shipment came (or of the shipment itself), and 4) the method used to determine the sulfur content of the oil. [40 CFR § 60.48c(f)(2)]

19. Operator of fuel oil fired units shall submit the following to the APCO as applicable: 1) construction or reconstruction notification, pursuant to 40 CFR 60.48c(a), 2) performance test data, pursuant to 40 CFR 60.48c(b), 3) quarterly excess emission reports or a semi annual report stating no excess emissions occurred, pursuant to 40 CFR 60.48c(c), and 4) quarterly reports pursuant to 40 CRF 60.48c(d) and (e). [40 CFR 60.48c]

20. Initial startup performance tests to show compliance with fuel oil sulfur content requirements shall be conducted according to 40 CFR § 60.44(g) or (h), as applicable.

21. This unit shall not be fired simultaneously on a combination of gaseous and oil fuels. [District Rule 2520, 9.4.2]

22. Compliance with permit conditions in the Title V permit shall be deemed compliance with the requirements of SJVUAPCD Rules 4201 (Amended December 17, 1992), and 4301 (Amended December 17, 1992. [District Rule 2520, 13.2]

23. Compliance with permit conditions in the Title V permit shall be deemed compliance with the requirements of County Rules 108 (Kings), 108.1 (Fresno, Merced, San Joaquin, Tulare, Kern, and Stanislaus), 110 (Madera) 402 (Madera), 404 (Fresno, Kern, Tulare, Kings, Stanislaus, Merced, and San Joaquin), 405 (Madera), 408 (Fresno, Kern, Tulare, Kings, Stanislaus, Merced, and San Joaquin), 407.2 (Kern, Tulare, Kings, Stanislaus, and San Joaquin), and 408.2 (Merced). A permit shield is granted from these requirements. [District Rule 2520, 13.2]

24. Compliance with permit conditions in the Title V permit shall be deemed compliance with the requirements of 40 CFR 60, Subpart Dc (except 60.44c(g) and (h) and 60.48c). A permit shield is granted from these requirements. [District Rule 2520, 13.2]

25. The requirements of 40 CFR 72.6(b) do not apply to this source. A permit shield is granted from this requirement. [District Rule 2520, 13.2]

APPENDIX A

O_2/CO_2 EXHAUST CONCENTRATIONS
FOR
TEMPLATE # SJV-BSG-19-0

NATURAL GAS

Maximum PM emissions will occur at 0% O_2 in the exhaust stream and District Rule 4301 requires a 12% CO2 correction. For natural gas firing units, 0% O_2 occurs at 12% CO_2. This is demonstrated by the following combustion equation for natural gas (wherein X denotes moles of excess air and (neglecting sulfur).

$$CH_4 + (2 + X)O_2 + (2 + X)(3.78)N_2 \quad \rightarrow \quad CO_2 + 2\,H_2O + XO_2 + (2 + X)(3.78)N_2$$

Solving an expression for the fraction of O_2 in the exhaust by volume, wherein the numerator represents the number of moles of CO_2 and the denominator represents the total number of moles of dry exhaust, set equal to 12% CO_2 yields the number of moles of excess air (X).

$$\frac{1}{1 + X + (2 + X)3.78} = 0.12 \quad \Rightarrow \quad X = 0.05$$

Substituting the coefficients and solving the resultant equation for the fraction of O_2 verifies that 12% CO_2 is equivalent 0% O_2:

$$CH_4 + 2.05O_2 + 7.75N_2 \quad \rightarrow \quad CO_2 + 2\,H_2O + 0.05O_2 + 7.75N_2$$

$$\frac{0.05}{1 + 0.05 + 7.75} = 0.0057 \approx 0\%$$

FUEL OIL

For units burning fuel oil the following combustion equation, wherein X denotes moles of excess air, reveals that 12% CO_2 in the exhaust stream occurs at 4% O_2. Consequently, the compliance of units firing on fuel oil is shown using AP42 F factors uncorrected from 0% O_2 to illustrate the worst case scenario.

$$C_{14}H_{30} + (21.5 + X)O_2 + (21.5 + X)(3.78)N_2 \quad \rightarrow \quad 14CO_2 + 15\,H_2O + XO_2 + (21.5 + X)(3.78)N_2$$

Solving an expression for the fraction of O_2 in the exhaust by volume, wherein the numerator represents the number of moles of CO_2 and the denominator represents the total number of moles of dry exhaust, set equal to 12% CO_2 yields the number of moles of excess air (X).

$$\frac{14}{14 + X + (21.5 + X)3.78} = 0.12 \quad \Rightarrow \quad X = 4.5$$

Substituting the coefficients and solving the resultant equation for the fraction of O_2 in the exhaust verifies that 12% CO_2 is equivalent 4% O_2:

$$C_{14}H_{30} + 25O_2 + 94.5N_2 \quad \rightarrow \quad 14CO_2 + 15H_2O + 4.5O_2 + 94.5N_2$$

$$\frac{4.5}{14 + 4.5 + 94.5} = 0.039 \approx 4\%$$

APPENDIX B

GAS SULFUR CONTENT STANDARDS
FOR
TEMPLATE # SJV-BSG-19-0

GENERAL ORDER 58-B
(Supplemental to General Order 58-A)

PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

HEATING VALUE MEASUREMENT STANDARD FOR GASEOUS FUELS

Approved October 17, 1984. Effective November 16, 1984.
(Decision 84-10-052, CII 83-11-01)

Original Order Approved December 28, 1955--Effective January 17, 1956

It is ORDERED that the following rules be adopted effective November 16, 1984 to govern all gas corporations as defined in the Public Utilities Code,* in the determination of heating values of fuel gases. The order also is supplemental to General Order 58-A, which requires utilities to provide and maintain heating value measurement stations and shall not relieve any gas corporation from complying with the provisions of general Order 58-A.

7. Purity of Gas

A. **Hydrogen Sulfide**

No gas supplied by any gas utility for domestic, commercial or industrial purposes in this state shall contain more than one-fourth (0.25) grain of hydrogen sulfide per one hundred (100) standard cubic feet.

B. **Total Sulfur**

No gas supplied by any gas utility for domestic, commercial or industrial purposes shall contain more that five (5) grains of total sulfur per one hundred (100) standard cubic feet.

C. Test procedures used to determine the amounts of hydrogen sulfide and total sulfur shall be in accordance with accepted gas industry standards and practices.

D. When hydrogen sulfide, or total sulfur, exceeds the limits set forth in Section 7.a. and Section 7.b., the gas utility shall notify the Commission and commence remedial action immediately. The Commission shall be notified when the level of hydrogen sulfide, or total sulfur, has been reduced to allowable limits.

$$\%S\left(lb\ S/lb\ CH_4\right)=\left(\frac{5\,gr}{100\,scf}\right)\left(\frac{1\,lb}{7000\,gr}\right)\left(\frac{24.45\,L}{mol\,CH_4}\right)\left(\frac{mol\,CH_4}{16\,g}\right)\left(\frac{454\,g}{1\,lb}\right)\left(\frac{0.035\,scf}{L}\right)(100)=0.017\%\ sulfur$$

FERC Gas Contract

ARTICLE 14 - QUALITY OF GAS

14. QUALITY

14.1 Gas Quality at Delivery Point(s): The Gas delivered by Transporter for Shipper at the Delivery Point(s):

(a) shall be merchantable Natural Gas commercially free from objectionable odors, solid matter, dust, gums, and gum forming constituents, or any other substance which interferes with its intended purpose, or causes interference with the proper and safe operation of the lines, meters, regulators, or other appliances through which it may flow;

(b) shall contain not more than seven (7) pounds/MMcf of water;

(c) shall contain no hydrocarbons in liquid form at the temperature and pressure at which the Gas is delivered at the Delivery Point;

(d) shall not exceed a hydrocarbon dew point of fifteen degrees (15°) Fahrenheit at pressures up to 800 psig;

(e) shall contain not more that 0.2% by volume of oxygen;

(f) shall contain not more than 3.0% by volume of carbon dioxide or nitrogen;

(g) shall contain not more than a combined total of 4.0% by volume of inerts, including carbon dioxide, nitrogen, oxygen and any other inert compound;

(h) shall contain not more that 0.25 grain of hydrogen sulfide per 100 Cubic Feet of Gas (the gas shall not contain any entrained hydrogen sulfide treatment chemical (solvent) or its by-products);

(i) shall contain not more that 0.3 grains of mercaptan sulfur per 100 Cubic Feet of Gas;

(j) shall contain not more that 0.75 grains of total sulfur per 100 Cubic Feet of Gas;

(k) shall not contain any toxic or hazardous substance, in concentrations which, in the normal use of the Gas, results in an unacceptable risk to health, is injurious to pipeline facilities, is a limit to merchantability or contrary to applicable governmental standards;

(l) shall have a minimum total heating value of not less than nine hundred seventy (970) Btu's per Cubic Foot of Gas on a dry basis;

(m) shall have a temperature of not less than forty degrees (40°) Fahrenheit, and not more than one hundred twenty degrees (120°) Fahrenheit.

$$\%S\left(\frac{lb\ S}{lb\ CH_4}\right) = \left(\frac{0.75\,gr}{100\,scf}\right)\left(\frac{1\,lb}{7000\,gr}\right)\left(\frac{24.45\,L}{mol\,CH_4}\right)\left(\frac{mol\,CH_4}{16\,g}\right)\left(\frac{454\,g}{1\,lb}\right)\left(\frac{0.035\,scf}{L}\right)(100) = 0.0026\%$$

APPENDIX C

DEFINITIONS
FOR
TEMPLATE # SJV-BSG-19-0

NSPS Definitions

§ 60.15 Reconstruction.

a) An existing facility, upon reconstruction, becomes an affected facility, irrespective of any change in emission rate.
b) "Reconstruction" means the replacement of components of an existing facility to such an extent that:
   1) The fixed capital cost of the new components exceeds 50 percent of the fixed capital cost that would be required to construct a comparable entirely new facility, and
   2) It is technologically and economically feasible to meet the applicable standards set forth in this part.
c) "Fixed capital cost" means the capital needed to provide all the depreciable components.
d) If an owner or operator of an existing facility proposes to replace components, and the fixed capital cost of the new components exceeds 50 percent of the fixed capital cost that would be required to construct a comparable entirely new facility, he shall notify the Administrator of the proposed replacements. The notice must be postmarked 60 days (or as soon as practicable) before construction of the replacements is commenced and must include the following information:
   1) Name and address of the owner or operator.
   2) The location of the existing facility.
   3) A brief description of the existing facility and the components which are to be replaced.
   4) A description of the existing air pollution control equipment and the proposed air pollution control equipment.
   5) An estimate of the fixed capital cost of the replacements and of constructing a comparable entirely new facility.
   6) The estimated life of the existing facility after the replacements.
   7) A discussion of any economic or technical limitations the facility may have in complying with the applicable standards of performance after the proposed replacements.
e) The Administrator will determine, within 30 days of the receipt of the notice required by paragraph (d) of this section and any additional information he may reasonably require, whether the proposed replacement constitutes reconstruction.
f) The Administrator's determination under paragraph (e) shall be based on:
   1) The fixed capital cost of the replacements in comparison to the fixed capital cost that would be required to construct a comparable entirely new facility;
   2) The estimated life of the facility after the replacements compared to the life of a comparable entirely new facility;
   3) The extent to which the components being replaced cause or contribute to the emissions from the facility; and
   4) Any economic or technical limitations on compliance with applicable standards of performance which are inherent in the proposed replacements.
g) Individual subparts of this part may include specific provisions which refine and delimit the concept of reconstruction set forth in this section.

[40 FR 58420, Dec. 16, 1975]

§ 60.2 Definitions.

Modification means any physical change in, or change in the method of operation of, an existing facility which increases the amount of any air pollutant (to which a standard applies) emitted into the atmosphere by that facility or which results in the emission of any air pollutant (to which a standard applies) into the atmosphere not previously emitted.

[44 FR 55173, Sept. 25, 1979, as amended at 45 FR 5617, Jan. 23, 1980; 45 FR 85415, Dec., 24, 1980; 54 FR 6662, Feb. 14, 1989; 55 FR 51382, Dec. 13, 1990; 57 FR 32338, July 21, 1992; 59 FR 12427, Mar. 16, 1994]

§ 60.41c Definitions

Residual oil means crude oil, fuel oil that does not comply with the specifications under the definition of distillate oil, and all fuel oil numbers 4, 5, and 6, as defined by the ASTM in D396-78.

APPENDIX D

SULFUR/SULFUR DIOXIDE CONVERSION FOR TEMPLATE # SJV-BSG-19-0

The following analysis shows the reasoning behind the mass increase in converting sulfur to sulfur dioxide (SO_2). The chemical equation for converting sulfur into sulfur dioxide is:

$$S + O_2 \rightarrow SO_2$$

The preceding equation shows that 1 mole of sulfur combined with 1 mole of oxygen will create 1 mole of sulfur dioxide. The molecular weight of sulfur (S) is 32.06 grams/mole. The molecular weight of oxygen (O_2) is 32.0 grams/mole. Thus, when the mole of sulfur is combined with the mole of oxygen, the resulting mole of sulfur dioxide has a mass of 64.06 grams/mole.

The preceding analysis shows that when sulfur is calculated as sulfur dioxide, the resulting mass of sulfur dioxide is twice the mass of initial sulfur converted.

APPENDIX E

COUNTY RULE / DISTRICT RULE 1081 COMPARISON FOR TEMPLATE # SJV-BSG-19-0

Rule 1081 (Source Sampling)

REQUIREMENTS	1081 SJVUAPCD	108 KINGS	110 MADERA	108.1 FRESNO	108.1 MERCED	108.1 S.J.	108.1 TULARE	108.1 KERN	108.1 STANI SLAUS
Upon request of the APCO, the source shall provide info. and records to enable the APCO to determine when a representative sample can be taken.	X		X	X	X	X	X	X	X
The facility shall collect, have collected or allow the APCO to collect, a source sample	X	X	X	X	X	X	X	X	X
The source shall have District personnel present at a source test	X								
The applicable test method, if not specified in the rule, shall be conducted in accordance with 40 CFR § 60, Appendix A	X								
Test procedures: 1) arithmetic mean of three runs 2) a scheduled source test may not be discontinued solely due to the failure to meet the applicable standard(s), and 3) arithmetic mean of two runs is acceptable if circumstances beyond owner or operator control occurs.	X								

APPENDIX F

EPA COMMENTS / DISTRICT RESPONSE
FOR
TEMPLATE # SJV-BSG-23-0

EPA COMMENTS / DISTRICT RESPONSE

The EPA's comments regarding boiler, steam generator, and process heater templates SJV-BSG-13 through -25 are encapsulated below followed by the District's response. A copy of the EPA's 1/27/97 letter is available at the District. These templates are designed for boilers that fire strictly on gaseous fuel and/or on fuel oil with a sulfur content not greater than 0.5%, by weight.

General Comments:

1. EPA COMMENT

In the future, for all model general permit templates, the public notice should clarify that this will be the public's only opportunity to comment on the specific permit conditions of the template.

DISTRICT RESPONSE

The suggested clarification has been incorporated into the public notice for general permit templates for loading racks, gas transfer, gas plants, well vents, and flares. The clarification will be incorporated into all future public notices for general permit templates.

2. EPA COMMENT

District Rules 4201 and 4301 are listed in the templates as Category A rules on the basis that SIP-approval is expected before permit issuance. Instead, the District should reference the relevant stringency finding from EPA, dated August 20, 1996, for District Rules 4201 and 4301 and the SIP approved old county rules.

DISTRICT RESPONSE

Table 1, Applicable Requirements, has been amended to reference the relevant stringency finding from EPA, dated August 20, 1996, for District Rules 4201 and 4301 and the SIP approved old county versions of these rules. Should SIP approval of these District rules not occur prior to permit issuance, the reference will allow the permit to issue as written.

3. EPA COMMENT

Correct all Template Qualification Forms (TQFs) to cite the acid rain requirements as 40 CFR 72.6(b). Also, the District may wish to consider including additional template qualification information in the template applicability portion of the template Section II (e.g., the units shall not have SCR and were not producing electricity for sale in 1985 or on or after 11/15/90).

DISTRICT RESPONSE
The TQF acid rain cite has been corrected to read "40 CFR 72.6(b)."

Template Section II, Applicability Section, provides some general text of template applicability information to the user, but states template applicability is determined by completion of the Qualification Form (TQF). It is unnecessary to repeat all information contained in the TQF again in Section II when it is already referenced.

4. EPA COMMENT
Section IV, Compliance, includes a streamlining demonstration for District Rules 4301, 4305, and 4351. The discussion states the analysis shows the NO_x requirements of Rule 4305 are more stringent than Rules 4301 and 4351. EPA concurs with the District's finding with respect to Rule 4301, but does not believe the analysis shows Rule 4305 is more stringent than Rule 4351.

DISTRICT RESPONSE
Units qualifying to use templates 14, 18, and 22-24 may be fired on liquid or gaseous fuels or a combination of liquid and gaseous fuels simultaneously. Section IV, Compliance, for these templates has been corrected to state where applicable, "the proposed NO_x requirements are more stringent than District Rule 4301; as stringent as Rules 4305 and 4351 for units combusting either liquid or gaseous fuels; and more stringent than Rules 4305 and 4351 for units simultaneously combusting liquid and gaseous fuels."

Applicability for templates 15, 16, 20 and 21 has been changed to disallow use by units capable of firing simultaneously on liquid and gaseous fuels. Therefore, Section IV, Compliance, for these templates has been corrected to state where applicable, "the proposed NO_x requirements are more stringent than District Rule 4301 and as stringent as District Rules 4305 and 4351."

5. EPA COMMENT
The District must include the requirement that the source shall provide information and records to enable the APCO to determine when a representative sample can be taken, to assure compliance with the applicable SIP-approved old county rules. Furthermore, if it is your intention to grant a permit shield in condition 1 please state it explicitly.

DISTRICT RESPONSE
These templates contain a table in the Appendix which compares the requirements of District Rule 1081 and the old county rules: 108 (Kings), 108.1 (Fresno, Merced, San Joaquin, Tulare, Kern and Stanislaus), and 110 (Madera). This table has been corrected to show the requirements of the District Rule 1081 are at least as stringent as the old county rules (i.e. it includes the requirement that the source shall provide information and records to enable the APCO to determine when a representative

sample can be taken. Compliance with District Rule 1081 is made by reference to the rule in condition #1 making the inclusion of this requirement unnecessary.

Regarding the permit shield, this condition has been amended to read "Compliance with permit conditions in the Title V permit shall be deemed compliance with the requirements of County Rules.... A permit shield is granted from these requirements." A permit shield has not been requested for District Rule 1081 since compliance with that rule is made by reference to the rule in condition #1.

6. EPA COMMENT

Please add a requirement that the source also record the specific type of non-certified fuel used.

DISTRICT RESPONSE

A requirement has been added for the source to record the daily amount and type of fuel combusted. This requirement will apply to all fuels, including non-certified fuel.

7. EPA COMMENT

For condition #4 which requires the source meet all applicable recordkeeping requirements in Rule 2520, the permit must reference as an underlying applicable requirement District Rule 2520, section 9.5.1.

DISTRICT RESPONSE

This condition, addressing the recordkeeping requirements of District Rule 2520, section 9.5.1, has been deleted from these templates. Instead, finalized District template SJV-UM-0-0 contains the following condition:

> The operator shall maintain records of required monitoring that include: 1) the date, place, and time of sampling or measurement; 2) the date(s) analyses were performed; 3) the company or entity that performed the analysis; 4) the analytical techniques or methods used; 5) the results of such analysis; and 5) the operating conditions at the time of sampling or measurement. [District Rule 2520, 9.5.1]

In addition, this condition will be added automatically to the facility-wide permit of any Title V source not choosing to use template SJV-UM-0-0, making it unnecessary to include this condition in any other template.

8. EPA COMMENT

EPA recommends rewriting condition #6 as follows: "Source testing shall be performed using EPA method 5 while firing on crude or topped crude oil to demonstrate compliance with PM emission limits. Source testing shall be performed within 60 days of firing on crude or topped crude oil unless such testing has been performed within the 12 months period prior to firing on said oil and the test results showed compliance with the limits in condition #5."

DISTRICT RESPONSE

This condition statement has been amended, for clarity, as follows "Source testing shall be performed using EPA method 5 while firing on residual oil (including crude or topped crude) to demonstrate compliance with PM emission limits. Source testing shall be performed within 60 days of firing on residual oil unless such testing has been performed within the 12 month period prior to firing on said oil and the test results showed compliance with PM emission limits of this permit."

9. EPA COMMENT

The District must demonstrate compliance with the permit will show compliance with SIP approved county rules 407.2 and 408.2, before a permit shield can be provided. In addition, these county rules should be included in section A of the applicable requirements table.

Where appropriate, please add references to EPA stringency findings.

The shield established in condition 7 overlaps with the permit shields established towards the end of each template. We recommend the District group permit shield provisions into two permit conditions, one for requirements that are found not to apply to the source, the other for requirements addressed in the permit.

DISTRICT RESPONSE

The District has amended template Section IV, Compliance to include a streamlining analysis, demonstrating the proposed template PM requirements are as stringent as District Rules 4301 and 4201 and more stringent than County Rules 407.2 (Kern, Tulare, Kings, Stanislaus, and San Joaquin) and 408.2 (Merced). County rules 407.2 and 408.2 have been added to section A of the applicable requirements table.

The District has also included references to EPA stringency findings, where appropriate, and as already addressed by the District response to EPA Comment #2.

Permit shield provision conditions have been grouped together at the end of the template conditions. For simplicity, they have been separated into shield conditions addressing requirements not applicable to the source and requirements addressed in the permit. Shield conditions addressing permit requirements have been further separated to address SIP approved old county rules, District Rules, and Code of Federal Regulation (CFR) requirements.

10. EPA COMMENT

Please add the words <u>or by</u> at the end of the first semi-colon to more clearly separate the three compliance options in condition #8.

DISTRICT RESPONSE

This condition has been amended to read "Compliance with this requirement may be demonstrated by firing the unit only on PUC or FERC regulated natural gas or on diesel fuel not exceeding 0.5% sulfur by weight; or by testing the sulfur content of each fuel and determining the maximum hourly emissions of sulfur compounds by multiplying the sulfur content of each fuel in lb/MMBtu by the maximum heat input rating of the unit; or by source testing in combination with fuel analysis."

11. EPA COMMENT

Add the requirement to condition #9 that if the source fails the semi-annual fuel content source test, the source shall resume weekly testing.

DISTRICT RESPONSE

This condition has been amended to include the following statement:

"If a semi-annual fuel content source test fails to show compliance, weekly testing shall resume."

12. EPA COMMENT

Add the requirement to condition #10 that if the source fails the every 36-month source test, the source shall resume annual testing.

DISTRICT RESPONSE

This condition has been amended to include the following statement:

"Gaseous fuel fired units demonstrating compliance on two consecutive annual source tests shall be tested not less than once every thirty-six months, however annual source testing shall resume if any test fails to show compliance."

13. EPA COMMENT

1) The District should not reference County Rules 404(Madera) and 406 (Fresno) in permit templates 13, 14, 15, 16, and 23 because these template only apply to sources located in Kern County, 2) For all other templates, please add the county to which each rule applies in condition #14, and 3) The cite for condition #14 of template 13 should be Rule 2520, 9.4.2.

DISTRICT RESPONSE

1) County Rules 404(Madera) and 406 (Fresno), and 407 (Kern, Tulare, Kings, Stanislaus, Merced, and San Joaquin) all limit SO_x emission to no greater than 0.2% by volume. The District contends it makes no difference to the source or to permit requirements if these three county rules are referenced in all templates, regardless of applicable location.

2) For templates #15, #16, and #19-20, all federally applicable SO_x requirements have been streamlined, according to EPA's White Paper 2 guidelines (see EPA comment #26 and District Response). Requirements contained in condition #14 have been subsumed by other requirements. Therefore this condition has been deleted from

these templates. For all other templates this condition has been amended to include the county to which each rule applies.

3) The underlying applicable requirement reference for this condition has been corrected to cite District Rule 2520, 9.4.2.

Comments specific to one or more templates:

14. EPA COMMENT

BSG 14, 16, 18, 20, 21, 22, 23, 24, and 25: 1) Clarify the frequency of testing by re-wording the compliance testing requirement to be consistent with Rule 4351, 2) add the requirement that annual testing will resume if the source fails the 36 month test, and 3) does the provision for reduced testing frequency apply to units firing only on natural gas? Please clarify.

DISTRICT RESPONSE

1) These template conditions have been amended to be consistent with wording in District Rule 4351 and to read "Annual source testing shall be performed for NO_x (ppmv) according to EPA Method 7E (or ARB Method 100), stack gas oxygen by EPA Method 3 or 3A (or ARB Method 100), and NO_x emission rate (heat input basis) by EPA Method 19. Gaseous fired units demonstrating compliance on 2 consecutive annual tests shall be tested not less than once every 36 months. Annual testing shall resume if any such test fails to show compliance. [District Rule 4305, 6.2.2, 6.2.4-7, & 6.3.1 and 4351, 6.2.2 & 6.2.4-7, & 6.3]."

2) This comment is the same as EPA comment #12. Refer to the District Response for Comment #12.

3) This provision for reduced test frequency applies to units firing gaseous fuels, which is evident from the amended wording. It is apparent through the conditions of these templates that, should other fuels be fired, other test methods and frequencies shall apply for units capable of firing those fuels.

15. EPA COMMENT

BSG 15, 16, 19, 20, and 21: The District should replace the words "diesel fuel" with the word "oil" in the template condition referencing Method 9 opacity testing. Also the District cites 40 CFR 60.43c(c)and (d) as the underlying applicable requirement. Remove the reference to paragraph (d) because conditions pertaining to exclusions during start-up, shutdowns and malfunctions are not contained in this permit condition.

DISTRICT RESPONSE

The words "diesel fuel" were replaced with the word "oil" in this template condition referencing Method 9 opacity testing, pursuant to initial District intent for this condition to be applicable to oil fueled units. Also, the reference to paragraph (d) as an underlying applicable requirement has been removed.

16. EPA COMMENT

BSG 13, 14, 15, 16, and 23: 1) Include a compliance period for which the 0.11 lb sulfur/MMBtu heat input applies. EPA believes a one hour averaging period is appropriate, 2) In addition to the recordkeeping requirements in condition #3, the

operator must record the time each unit is operating and the capacity at which each unit is operating, and 3) Also include a detailed discussion of the averaging provisions of Rule 424 in Section IV, Compliance.

DISTRICT RESPONSE

1) This conditions has been amended to include the a compliance period as follows, "Sulfur emissions shall not exceed 0.11 lb of sulfur per million BTU of heat input, averaged over 3 - one hour periods."

2) Since the unit may operate at maximum capacity, compliance must be demonstrated at maximum capacity. Recording time and capacity at which each unit is operating is unnecessary to demonstrate compliance with these template requirements. This condition has been amended however to include recording daily amount and type(s) of fuel(s) combusted, pursuant to NSPS requirements.

3) A detailed discussion of the averaging provision of Kern County Rule 424 has been included in Section IV, Compliance.

17. EPA COMMENT

BSG 14, 16, 18, 20, 21, 23, 24, and 25: Include in the side-by-side comparison table for Rules 4305 and 4351 the applicable requirement that the owner/operator shall monitor NOx control technology, if so equipped. In the fifth column, Proposed Requirements, we recommend stating this requirement will be met through the source specific title V permits. Also, because this provision is not addressed in the template, a shield cannot be provided for these section of Rules 4305 and 4351.

DISTRICT RESPONSE

The District agrees this suggestion would be helpful to users to clarify what requirements are necessary for sources to address outside of the template. The side-by-side comparison table for Rules 4305 and 4351 has been amended to include the applicable requirement that the owner/operator shall monitor NO_x control technology, if so equipped. The fifth column, Proposed Requirements, has been amended to state this requirement will be met through the source specific title V permits.

Also, the shield has been removed for these sections of Rule 4305 and 4351.

18. EPA COMMENT

BSG 14, 16, 18, 20, 21, 22, 23, 24, and 25: The District cannot provide a shield for an entire rule (e.g. 4305 and 4351) unless all applicable requirements of the rule are included in the permit.

DISTRICT RESPONSE

The permit shield has been narrowed to apply only to those sections of rules addressed in the template.

19. EPA COMMENT

BSG 15, 17, and 19: These templates provide a permit shield from District Rule 4301 and county rule 405 (Madera), 408 (Fresno, Kern, and Stanislaus), 409 (Tulare and Kings), and 408.1 (Merced and San Joaquin). Why are rules 408.1 and 409 referenced? Rules 408 for these counties may be more appropriate.

DISTRICT RESPONSE

County rules 409 (Tulare and Kings) and 408.1 (Merced and San Joaquin) apply to units with a maximum heat input greater than 1,775 MMBtu/hour. Units qualifying to use these templates do not exceed 100 MMBtu/hour. Therefore any reference to these rules in these templates has been removed. Rule 408 for these counties is applicable and has been addressed and referenced instead.

20. EPA COMMENT

BSG 14, 16, 18, 20, 21, 22, 23, 24, and 25: The District must add language to the condition to require monitoring and recordkeeping during natural gas curtailments, similar to wording used in final template SJV-BSG-4-0, condition #4.

DISTRICT RESPONSE

This condition has been modified to read "NO_x requirements shall not apply during natural gas curtailments to units burning liquid fuel that are normally fired with gaseous fuel. This exemption is limited to 336 cumulative hours of operation per calendar year excluding equipment testing not to exceed 48 hours per calendar year. For any unit so exempted, cumulative annual hours of operation on each liquid during curtailment and during testing shall be monitored and recorded."

21. EPA COMMENT

BSG 16 and 20: Template permit shield conditions incorrectly state 40 CFR 60.40c does not apply.

DISTRICT RESPONSE

The permit shield conditions have been corrected. 40 CFR 60.40c does apply.

22. EPA COMMENT

BSG 16 template qualification form incorrectly disqualifies the applicant from using this template if the source has constructed or modified after June 9, 1989.

DISTRICT RESPONSE

The qualification form statement has been amended to read, "Has construction, modification, or reconstruction commenced after June 9, 1989? [NSPS 40 CFR 60.40c(a)] If "yes", continue to next question; otherwise STOP - you cannot use this template."

23. EPA COMMENT

BSG 15, 16, 19, 20, and 21: These template conditions state opacity shall be determined while firing on diesel fuel. The District must assure the opacity requirement is not exceeded during firing on crude or topped crude.

DISTRICT RESPONSE

These conditions have been amended to read "Method 9 shall be used for determining the opacity of stack emissions at annual inspections while firing on oil fuel."

24. EPA COMMENT

BSG 14, 16, 18, 20, 21, 22, 23, 24, and 25: 1) A provision should be added to return the source to annual compliance testing if noncompliance is shown for NO_x, and 2) The District must remove the monitoring provision which allows NO_x source test results from one unit to be used to fulfill the monitoring requirements for identical units. It is not clear to EPA who this adequately assure all units are meeting the required emission limit. We also note Rule 4305 does not contain this provision and that streamlining guidance set out in EPA's White Paper #2 requires the most assuring monitoring be carried into the permit.

DISTRICT RESPONSE

1) This provision has been added, as previously addressed in the District response to EPA comment #12.

2) Current District Rule 4305 (amended December 19, 1996) does contain the provision allowing NOx source test results from one unit to be used to fulfill the monitoring requirements for identical units. In addition this rule contains other conditions which must be met for a source to qualify to submit test results from individual units that represent a group of units.

In response to this EPA comment, the District has had numerous conversations with EPA regarding what changes must be made to these template conditions, beyond the requirements of current District Rule 4305, to assure compliance with the permit NOx limit. In response to these conversations, EPA drafted a letter, dated April 16, 1997, which specified additional requirements which would satisfy their concerns regarding compliance. This letter is contained in Attachment 1. Please note District Rule 4305 requires the number of representative units to be at least 10% of the total number of units in the group. EPA is requiring this number be changed to 30% and that tested units be rotated so that at the end of 3 years, all units in the entire group will have been tested. EPA has also requested the results of initial source tests on units in a group meet specific requirements and that the tune-up procedures used on the units be specified. These templates conditions have been modified/amended as follows, to address requirements of current District Rule 4305 and to assure compliance pursuant to EPA's April 16, 1997 request:

- Annual source testing shall be performed for NO_x (ppmv) according to EPA Method 7E (or ARB Method 100), stack gas oxygen by EPA

Method 3 or 3A (or ARB Method 100), and NO_x emission rate (heat input basis) by EPA Method 19. Gaseous fired units demonstrating compliance on 2 consecutive annual tests shall be tested not less than once every 36 months. Annual testing shall resume if any such test fails to show compliance. [District Rule 4305, 6.2.2, 6.2.4-7, & 6.3.1 and 4351, 6.2.2 & 6.2.4-7, & 6.3]

- Annual test results submitted to the District from unit(s) representing a group of units may be used to demonstrate compliance with NO_x limits of this permit for that group, provided the selection of the representative unit(s) is approved by the APCO prior to testing. Should any of the representative units exceed the required NO_x emission limits of this permit, each of the units in the group shall demonstrate compliance by emissions testing within 90 days of the failed test. (This requirement shall not supersede a more stringent NSR or PSD permit testing requirement.) [District Rules 2520, 9.4.2, 4305, 6.3.2 and 4351, 6.3]

- The following conditions must be met for representative unit(s) to be used to demonstrate compliance for NO_x limits for a group of units: 1) all units are initially source tested and emissions from each unit in group are less than 90% of the permitted value and vary 25% or less from the average of all runs, 2) all units in group are similar in terms of rated heat input (rating not to exceed 100 MMBtu/hr), make and series, operation conditions, and control method, and 3) the group is owned by a single owner and located at a single stationary source. [District Rule 4305, 6.3.2]

- All units in a group for which representative units are source tested to demonstrate compliance for NO_x limits of this permit shall have received the same maintenance and tune-up procedures as the representative unit(s). These tune-up procedures shall be completed according to District Rule 4304 (Adopted October 19, 1995) and tune-up test results shall show comparable results for each unit in the group. Records shall be maintained for the each unit of the group including all preventative and corrective maintenance work done. [District Rules 2520, 9.4.2 and 4305, 6.3.2]

- All units in a group for which representative units are source tested to demonstrate compliance for NO_x limits of this permit shall be fired on the same fuel type during the entire compliance period. If a unit switches for any time to an alternate fuel type (e.g. from natural gas to oil) then that unit shall not be considered part of the group and shall be required to undergo a source test for all fuel types used, within one year of the switch. [District Rules 2520, 9.4.2 and 4305, 6.3.2]

- The number of representative units source tested to demonstrate compliance for NO_x limits shall be at least 30% of the total number of units in the group. The units included in the 30% shall be rotated, so that in 3 years, all units in the entire group will have been tested at least once. [District Rule 2520, 9.4.2]

25. EPA COMMENT

BSG 13, 15, 17, and 19: Rule 4301 appears to apply to these units, but these templates do not contain any NO_x limits. A NO_x limit of 140 lb/hour and appropriate monitoring requirements must be added to the template.

DISTRICT RESPONSE

It has been our experience when permitting units in the District of the type which would qualify to use this template, that AP-42 uncontrolled emission factors are very conservative. Source test records maintained at the District consistently show significantly lower NOx emission factors for these units.

In addition, almost without exception units using this template will have O2 controllers, most will have low NOx burners, and many will have flue gas recirculation, all of which provide NOx control beyond the uncontrolled values calculated here.

For units combusting gaseous or distillate oil fuels, NOx in emissions is formed primarily by thermal fixation of nitrogen in combustion air. Actual emission values for units able to use this template are not expected to vary significantly nor exceed the uncontrolled limits calculated in this template, which are one tenth of the NOx emission limit allowed by District Rule 4301. In reviewing District source test records for 340 oilfield steam generator units, without flue gas recirculation, rated at 62.5 MMBtu/hour and fired either on gaseous or distillate oil, NOx emissions ranged from 0.9 to 7.8 lb NOx/hour. Most units firing gaseous fuel had emissions ranging from 1-3 lb NOx/hour. All units (seven total) firing distillate oil had emissions ranging from 4.8 - 6.2 lb NOx/hour. Units with flue gas recirculation had even lower emission rates, as expected. The District is certain compliance is assured without testing, recordkeeping and monitoring requirements for these units.

For residual and crude oils, NOx is formed primarily by oxidation of fuel nitrogen which can vary. Therefore, the District will required these units to demonstrate compliance with the NOx emissions limit using supplier certification information or source test results of nitrogen content of fuel, to determine emissions.

26. EPA COMMENT

BSG 15, 19, 20 and 21: The District must fully address the NSPS subpart Dc requirements for good air pollution control practice, notification and recordkeeping requirements, or submit a streamlining demonstration that shows the NSPS has been appropriately subsumed by other permit requirements.

DISTRICT RESPONSE
A streamlining demonstration has been added to these templates and to SJV-BSG-16 that shows the NSPS has been appropriately subsumed by other permit requirements.

27. EPA COMMENT
BSG 18: The reference for condition 17 should read, "District Rule 4351, 5.2.4.1 and 5.4..." not 7.4.

DISTRICT RESPONSE
This condition has been amended to reference District Rule 4351, 5.2.4.1 & 5.4.

28. EPA COMMENT
BSG 23: This template applies only to generators in the Kern County oil fields. The wording "including steam generators..." on the cover sheet implies a broader applicability. Please remove the word "including" from the description of units eligible for this template.

DISTRICT RESPONSE
The word "including" has been removed from the cover page description of units eligible for this template.

29. EPA COMMENT
BSG 23: The template qualification form includes two questions regarding size of the unit. The third question of the form asks if the unit has a maximum heat input of between 15 and 100 MMBtu/hour; the fifteenth question asks if the unit has a maximum heat input of between 10 and 100 MMBtu/hour. Please eliminate the latter.

DISTRICT RESPONSE
This template applies to units between 15 and 100 MMBtu/hour. The latter condition has therefore been eliminated.

30. EPA COMMENT
BSG 24: The compliance date in condition 17 should read December 16, 1997.

DISTRICT RESPONSE
This compliance date originally read May 16, 1997. This date has been amended to read May 31, 1997, pursuant to District Rule 4351, section 5.2.2, the cover page template description, and the Template Qualification Form.

Attachment 1

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IX

76 Hawthorne Street

San Francisco CA 94105-3901

April 16, 1997

Seyed Sadredin
Director of Permit Services
San Joaquin Valley Unified APCD
1999 Tuolumne Street Suite 200
Fresno, California 93721

Re: Representative NOx Source Tests for Boiler, Steam Generators and Process Heaters

Dear Mr. Sadredin:

This letter is in response to numerous phone conversations between EPA Region IX and SJVUAPCD (District) regarding the NO_x source testing schedules for the draft boiler and steam generators and process heater (BSG) permit templates 13 through 25. EPA provided comments on this set of BSG templates to the District in a letter dated January 27, 1997.

We are concerned that the compliance testing provisions in Rule 4351 6.3 and newly adopted rule 4305 6.3.2 will not assure compliance with the applicable NO_x emission limits in those rules. Originally we were concerned with the following permit language in draft templates 14, condition #16; 16, #18; 18, #l5, 20, #17; 21, #17; 22, #15; 23, #15, 24, #15; 25, #15:

> "...[g]aseous fired units shall test at least once every 36 months if compliance is shown for two consecutive years. Test results submitted to the District from Individual units that are identical to a group of units, in terms of rated capacity, operational conditions, fuel used, and control method, may satisfy these requirements [District Rule 4305, 6.2.2, 6.2.4-7 and 4351, 6.2.2 & 6.2.4-7 & 6.3]." [emphasis added].

In our comment on this provision dated January 27, 1997, we stated (comment #24):

> "...A provision should be Included that will return the source to annual compliance tests if noncompliance Is shown.
>
> These conditions also include the monitoring provision from paragraph 6.3 of rule 4351, which allows NO_x source test results from one unit to be used to fulfill the monitoring requirements for identical units. It is no clear to EPA how this adequately assures that all units are meeting the required emission limit. We also note that Rule 4305 doe not contain this provision. In order to be consistent with the streamlining guidance set out in EPA's White Paper #2, which requires that the most assuring monitoring be carried into the permit, and to qualify for the permit shield, this provision must be removed."

Since our comment letter, however, EPA discovered that the District has revised Rule 4305[1] (revised 12/19/96) to allow a group of similar emission units to qualify for the representative source test provision. Specifically rule 4305 6.3.2 states;

> In lieu of compliance with 6.3.1, compliance with the applicable limits shall be demonstrated by submittal of annual source test results to the District from a unit or units that represents a group of units, provided:
>
> 1) all units are initially source tested and the emissions from all units in the group are similar;
>
> 2) all units in a group are similar in terms of rated heat input, make and series, operational conditions, fuel used, and control method; and;
>
> 3) the group is owned by a single owner and is located at a single stationary source; and
>
> 4) selection of the representative unit(s) is approved by the APCO prior to testing;
>
> 5) the number of representative units source tested shall be at least 10% of the total number of units in the group; and
>
> 6) all units in the group shall have received the same maintenance and tune-up procedures as the representative unit(s); and
>
> 7) should any of the representative units exceed the required emission limits, each of the units in the group shall demonstrate compliance by emissions testing. Failure to

[1] It is our understanding that the District plans to revise 4351 to include the same language as 4305 6.3.2.

complete emissions testing within 90 days of the failed test shall result in the untested units being In violation of this rule.

It is our understanding that the District intends to include language from rule 4305 6.3.2 into the permit templates. EPA is concerned that a representative source test from a unit or units will not assure compliance with the applicable NO_x limit for all untested units even if all the criteria in Rule 4305 are met. We have the following comments on the seven criteria in Rule 4305 6.3.2 and we believe that incorporating these improvements will satisfy our concerns for the title V permits:

1) The compliance frequency in the permits shall not supersede a more stringent (i.e., annual test for all units) testing requirement found in existing NSR or PSD permits or any other federal requirement.

2) The criteria for selection of units to be included in a group must be more stringent than what the District currently requires. We agree that all units to be included must be initially source tested. But the requirement that emissions from all units in the group be “similar" is vague. Originally we understood this to mean that the actual emissions from the initial source test be "similar." We discovered, however, that the District interprets this to mean the permit allowable emissions be similar. By simply requiring the units to have similar permit limits says nothing about the actual emissions. EPA strongly believes that the District should require the source to show that emissions from all test runs from all units within the group are: a) less than 90% of the permitted value; and b) do not vary greater than 25% from the average of all runs. We believe that if an emission unit fails to meet these criteria, then it should not be allowed to be in be group for which a representative test is allowed.

3) The percentage of the total number of units tested shall be not less than 30% per year and the representative tests shall rotate each year so that within three years all units within the group have been tested at least once.

4) Your requirement that all units have the "same" maintenance is vague. As you know, maintenance requirements vary considerably between u nits. We believe that the District should list, in the permit, the type(s) of maintenance e allowed for units interested in qualifying for the group. If, after the Title V permit is issued, any unit requires maintenance beyond what is listed, the unit should not be included in the group for which representative source testing is allowed. Furthermore, tune-up procedures should be prescriptive. For example, Attachment 1 to Appendix A of the RACT/BARCT guidance; or BSG units (July 18, 1991) could be referenced in the permits to ensure consistent maintenance and tune-up procedures are followed for all units. Finally, the recordkeeping requirements should include all preventive and corrective maintenance work done for each unit and tune-up test results from equipment tuning procedures should show comparable results for each unit.

5) A11 units in the group shall be fired on the same fuel during the entire compliance time period. If a unit switches (even if for a short duration) to an alternate fuel *(e.g., from* natural gas to fuel oil) then that unit shall not considered part of the group and shall be required to undergo a source test for all fuel types used, within one year of the switch.

6) No emission unit with a heat input greater than 100 MMBtu/hr shall be considered as part of the group.

We are committed to working with the District to develop this representative testing process. Incorporation of all our comments into the template permits will satisfy our concerns for purposes of the permits. For SIP-approval of these rules, however, we strongly believe that supporting documentation is necessary; especially if changes to our recommendations are requested. We highly recommend, therefore, that the District collect and maintain test results from these units. Until sufficient data is available, we strongly believe that clarifying the requirements per our aforementioned suggestions will satisfy our concerns and will not place an unrealistic cost burden on the source.

Finally, as mentioned above, this letter only addresses the concerns raised in our comment letter on the proposed BSG templates 13 though 25. We have noted in final BSG templates 4, 6, 7, 8, and 9 dated November 7, 1996 the District added, without justification, a provision to allow a representative source test according to the requirements of rule 4351 6.3, EPA is currently reviewing all response to comments the District provided for these and other final District templates and if sufficient justification exists, we may re-open those final templates according to 40 CFR 70.7(g).

If you have any questions, please call David Wampler of my staff at (415)744-1256 or me at (415) 744-1254.

Sincerely,

Matt Haber
Chief, Permits Office

cc: Richard McVaigh, SJVUAPCD
Beverly Boucher, SJVUAPCD
Andy Steckel, EPA Chief, Rulemaking Office, Region 9

APPENDIX G

PUBLIC COMMENTS / DISTRICT RESPONSE
FOR
TEMPLATE # SJV-BSG-19-0

PUBLIC COMMENT / DISTRICT RESPONSE

Public comments were received from CalResources regarding boiler, steam generator, and process heater templates SJV-BSG-13 through -25. These comments are encapsulated below followed by the District's response. Copies of the comments are available upon request at the District office.

General Comments:

1. PUBLIC COMMENT

Change the requirement of using EPA test Method 6B or 8 for demonstration of SO_x compliance when stack testing to using a grab sample analysis by GC-FPD/TCD performed in the laboratory and calculating emissions using EPA Method 19 (fuel analysis method). Generators using scrubbed gas to reduce SO_x emissions will need to use the stack test method to demonstrate compliance. Units using scrubbed gas are expected to have SO_x emissions below 0.01 lb/MMBtu and should therefore use the fuel analysis method for more accurate detection and results. In addition, EPA test Methods 6B and 8 are much more costly and time consuming to perform.

DISTRICT RESPONSE

All units using stack testing to demonstrate compliance must also perform fuel analysis, pursuant to template conditions. The District agrees stack testing using GC-FPD/TCD will more accurately detect SO_x emissions at expected levels for units using gaseous fuel scrubbed for sulfur pre-combustion. The template condition has been revised as follows:

> - When complying with SO_x emission limits by testing of stack emissions, testing shall be performed not less than once every 12 months using EPA Method 6B; or Method 8; or, for units using gaseous fuel scrubbed for sulfur pre-combustion, a grab sample analysis by GC-FPD/TCD performed in the laboratory and EPA Method 19 to calculated emissions. Gaseous fuel fired units demonstrating compliance on two consecutive annual source tests shall be tested not less than once every thirty-six months, however annual source testing shall resume if any test fails to show compliance. [District Rule 2520, 9.4.2]

2. PUBLIC COMMENT

Delete the word "weekly" from the condition which states, "... test the sulfur content of each fuel source weekly and demonstrate the sulfur content does not exceed 3.3% by weight for gaseous fuels or 3.0% by weight for crude oil or topped crude..." to show compliance with 0.2% sulfur by volume emission limit. The frequency of fuel sulfur content testing is already contained in a separate template condition and these two conditions seem to conflict.

DISTRICT RESPONSE

The District agrees the word "weekly" is unnecessary and confusing in this condition. This condition has been modified to read as follows:

> - The concentration of sulfur compounds in the exhaust from this unit shall not exceed 0.2% by volume as measured on a dry basis over a 15 minute period. To demonstrate compliance with this requirement the operator shall do one of the following: fire the unit only on PUC or FERC regulated natural gas or diesel fuel not exceeding 0.5% sulfur by weight; or test the sulfur content of each fuel source <u>weekly</u> and demonstrate the sulfur content does not exceed 3.3% by weight for gaseous fuels or 3.0% by weight for residual oil (including crude or topped crude); or determine that the concentration of sulfur compounds in the exhaust does not exceed the concentration limit by a combination of source testing and fuel analysis. [District Rule 2520, 9.4.2 and County Rules 404 (Madera), 406 (Fresno), and 407 (Kern, Kings, Merced, San Joaquin, Stanislaus, and Tulare)]

All templates still contain the following unmodified condition, which specifies the frequency of fuel analysis:

> - When complying with sulfur emission limits by fuel analysis or by a combination of source testing and fuel analysis, each fuel source shall be tested weekly for sulfur content and higher heating value. If compliance with the fuel sulfur content limit and sulfur emission limits has been demonstrated for 8 consecutive weeks for a fuel source, then the fuel testing frequency shall be semi-annually. If a semi-annual fuel content source test fails to show compliance, weekly testing shall resume. [District Rule 2520, 9.4.2]

PUBLIC COMMENT

The templates require annual source testing for NOx compliance using EPA Method 7E (or ARB Method 100), stack gas oxygen by EPA Method 3 or 3A (or ARB Method 100), NO_x emission rate (heat input basis) by EPA Method 19, and stack gas velocity by EPA Method 2 and stack gas moisture content by EPA Method 4. We request the requirement to use EPA Methods 2 and 4 be deleted and EPA Method 19 be used to calculate stack gas velocity.

DISTRICT RESPONSE

Stack gas moisture content is not used in determining NO_x emission rates and therefore the requirement to use EPA Method 4 has been deleted from this condition. District Rules 4305 and 4351, Section 6.2 of both rules, specify the NO_x emission rate can be determined by heat input basis, using EPA Method 19. Therefore, the District will delete the requirement to determine stack gas velocity by EPA Method 2. For affected templates, this condition has been modified to read as follows:

> - Annual source testing shall be performed for NO_x (ppmv) according to EPA Method 7E (or ARB Method 100), stack gas oxygen by EPA Method 3 or 3A (or ARB Method 100), and NO_x emission rate (heat input basis) by EPA Method 19. Gaseous fired units demonstrating compliance on 2 consecutive annual tests shall be tested not less than once every 36 months. Annual testing shall resume if any such test fails to show compliance. [District Rule 4305, 6.2.2, 6.2.4-7, & 6.3.1 and 4351, 6.2.2 & 6.2.4-7, & 6.3]

APPENDIX H

TEMPLATE QUALIFICATION FORM
FOR
TEMPLATE # SJV-BSG-19-0

Template SJV-BSG-19-0

Title V General Permit Template Qualification Form

District permit #_____

Please answer the questions in the table below. A boiler or steam generator (unit) which meets the criteria of this table is qualified to use this template as part of a Title V application. To use this template, remove this sheet and attach to application.

Yes	No	Description of Qualifying Units
		Is this unit located west of Interstate 5 in Fresno, Kings or Kern county? [District Rules 4305 and 4351] If "yes", then continue to next question; otherwise STOP - you cannot use this template.
		Is this unit a steam generator used in oilfield operations in Kern County for which an authority to construct or permit to operate was issued prior to September 12, 1979? [Kern County Rule 424] If "no", continue to next question; otherwise STOP - you cannot use this template.
		Does this unit have a maximum design heat input rating greater than 10 MMBtu/hr and less than or equal to 100 MMBtu/hr? [NSPS 40 CFR 60.40c] If "yes", continue to next question; otherwise STOP - you cannot use this template.
		Is this unit fired on distillate or residual oil (including crude, as defined in Appendix C, Definitions) with a sulfur content < 0.5% by weight or gaseous fuel, but **not** simultaneously on a combination of oil and gaseous fuels? If "yes", then continue to next question; otherwise STOP- you cannot use this template.
		Has construction, modification, or reconstruction commenced after June 9, 1989? [NSPS 40 CFR 60.40c(a)] If "yes", continue to next question; otherwise STOP - you cannot use this template.
		Is the unit equipped with selective catalytic reduction? If "no" continue to the next question; otherwise STOP - you cannot use this template.
		Was this unit used to produce electricity for sale in 1985 or on or after November 15, 1990? [40 CFR 72.6(b)] If "no" you qualify to use this template; otherwise STOP - you cannot use this template.

Based on information and belief formed after reasonable inquiry: 1) the information on this form is true, accurate and complete, and 2) the facility is in compliance with this template's permit conditions:

Signature of Responsible Official

Date

Name of Responsible Official (Please print)